SECTION 5:
VEGETATION TREATMENT TYPES BY ZONE AND MANAGEMENT AREA

5.0 VEGETATION TREATMENT TYPES WITHIN EACH ZONE

This Section of the VMP describes the vegetation "treatments" and seasonal timing for carrying them out, for each of the Management Areas in the Park by Landscape Zone. Treatments include such activities as pruning, mulching, planting, watering, mowing and weeding, plus others. In effect, this section describes *what* is to be done, *when* to do it, and *where* to do it, and is meant in all cases to be used together with Section 6, which specifically describes *how* to do it.

In this Section the following tools are provided for each Management Area:

- A description of the MA (Management Area);
- A year-long calendar for all maintenance and management actions for that MA in that Landscape Zone;
- A summary of the maintenance and management actions that are to be performed;
- Site-specific direction about performing any actions;
- A Maintenance Monitoring Checklist.

The Maintenance Monitoring Checklists were created as a tool to determine the effectiveness of implementing the directives of this Vegetation Management Plan. Maintenance Monitoring Checklists (MMC's) have been created for each MA where regular maintenance activities are needed and expected. For the Sand Point East Housing Zone and Historic District Zone MA's, the checklist format used elsewhere is replaced with a Sand Point Maintenance Monitoring Form to be tailored to individual landscape areas, based on the template provided in Appendix D. Vegetation differs in these two zones from the rest of the park landscape because of its developed, historic character.

Checklists are not intended for specific project actions within the Park, such as a major removal of blackberry thickets or replanting native species within one of the habitat areas, or a recreation of historic bed plantings. Section 6.11 of this Plan provides thresholds to determine whether weeding and invasive control actions fall under maintenance, or constitute instead specific projects which require individual monitoring plans and checklists (see Section 8). The MMC's are provided as tools to ascertain if normal and routine maintenance is being implemented effectively.

Ten orthophoto maps are located at the end of Section 5, one for each Landscape Zone, also delineating its component Management Areas,. A final, key tool in Section 5 is a Master Calendar that summarizes all of Section 5 on one page. This calendar includes all Landscape Zones and Management Areas, and summarizes by numeric code every recommended maintenance and management action by month. SPMP Maintenance staff requested that this Master Calendar be assembled, to assist them in efficiently planning their work.

5.1 Shoreline Zone

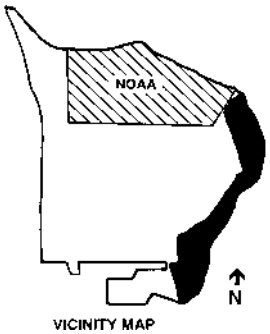
5.1.1 Fin Project Management Area

The Fin Project MA is northwest of the swimming beach and is bounded by paved walkways to the east, west, and south, and extends to the north 50' beyond the northernmost fin. Management of this MA should focus on the site's function primarily as an art installation. Management is specified in the 1998 Maintenance Agreement for the art installation, and consists mainly of meadow mowing in the greater part of the area, and weeding and invasive control in the planted habitat islands as well as in the meadow. Any planting done in this MA should be limited to replacing failed plantings in the habitat islands according to existing 1998 planting plan.

Management and Maintenance Annual Calendar
Shoreline Zone – Fin Project Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	•	•	•	▢	▢	▢
Maintaining Meadow			•	•	•							
Mulching				▢	▢							
Planting												
Shrubs		▢	▢							▢	▢	▢
Pruning	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Removing Plants	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs					▢	▢	▢	▢	▢			
Herbs				▢	▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be necessary for any new plantings that are added to the habitat islands to replace woody plants that have not survived since initial planting.

MEADOW MAINTENANCE

Mowing should be done three times annually in the late winter/early spring to maintain the site's main function as an art installation, to suppress invasive weed growth, and to provide summer forage and cover for wildlife. The proposed mowing schedule has a different seasonal timing than all other meadow areas in the Park (spring instead of fall), and a change in the timing from what is specified in the maintenance agreement. This is being done to prevent bird nesting in an area where nests are very likely to be disrupted, but to provide later season summer forage and cover.

Mowing must be done early enough in the spring to prevent bird nesting in this area where the intensive human use of the site will disturb nests. Mowing should be started in mid-March, and should be done twice more at 3-4 week intervals to keep the grass low enough so that birds nest elsewhere. After the last mowing in May, grass can be allowed to grow until the following March. If invasive weed growth is not adequately suppressed over time with this regimen, an additional mowing can be added in September. An amendment to the 1998 Maintenance Agreement should be made that incorporates these changes.

MULCHING

Mulch woody species installed within the habitat areas annually as necessary or desirable. Re-surface the bark pathway through the MA annually as specified in the Maintenance Agreement.

PLANTING

Plant selected woody species in the habitat islands to replace those individuals that did not survive from the initial planting. Choose species from the original planting plan and make substitutions as necessary on the basis of plant survival from the initial planting.

PRUNING

Prune trees and shrubs throughout as needed for plant health or hazardous limbs, and on the west side of the Management Area to maintain reasonable views of the Fin Project and Lake Washington from the concrete walkway at the base of Kite Hill as specified in the Maintenance Agreement.

PLANT REMOVAL

Other than invasives, removals should be performed only in the case of hazard trees, or of diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from removals that will not sucker or sprout from cuttings or branches can be used anywhere in the Habitat Zone, except in the small seasonally

ponded wetlands, for wildlife habitat features such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that cannot be used for habitat features until completely dead, should be stored off the ground until such time that it is no longer viable (2 years).

WEEDING AND INVASIVE CONTROL

Control of invasives will be needed in the habitat islands as well as in the meadow if mowing alone does not adequately suppress woody invasives. Scot's broom and Himalayan blackberry are particularly problematic throughout this MA in habitat islands as well as meadow area. All woody species (native or non-native) are undesirable in meadow areas if upland meadows are to be maintained at that successional stage, and weedy herbaceous species should also be controlled.

5.1.2 Non-native Shrub Management Area

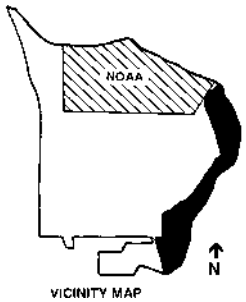
The largest concentrations of non-native shrub thickets in the Shoreline Zone occur between the swimming beach and the north boundary of the Zone. These thickets are made up almost exclusively of Himalayan blackberry and Scot's broom, and range in size from approximately 0.2 acres to 1.5 acres. There are two sizeable thickets in the southern part of the Zone, just northwest of the boat ramp and directly south of the south parking lot.

Thickets should be cleared of invasives by mechanical mowing and replanted for conversion to native shrub, forest, or limited areas of meadow communities. Clearing of thickets should occur only when follow-up replanting with native species and 3 yr. establishment care is intended, and should be done incrementally in patches as specified in Section 6.11 to provide displaced wildlife with adjacent or nearby replacement habitat.

Management and Maintenance Annual Calendar
Shoreline Zone – Non-native Shrub Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	•	▒	▒
Establishing Meadow			▒	▒	▒	▒	▒	▒	▒	▒		
Maintaining Meadow									•			
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒	▒	▒				▒		
Amending Soils							▒	▒	▒			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs				▒	▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native shrubs.

ESTABLISHING MEADOW

Some limited meadow areas can be established in cleared thicket areas that are adjacent to existing upland meadows. This will be the most labor-intensive and difficult plant community to establish in these areas due to the level of invasive control that will be needed. For these reasons, and because of the prevalence of this habitat type at the Park currently, establishing more meadow may not be the most desirable choice for both ecological and economic reasons. Establishment would include seeding, weeding, mowing, and possibly soil amending.

MAINTAINING MEADOW

Any newly established meadows created as conversion from non-native shrub thicket must be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. Annual mowing will be necessary to adequately control re-sprouting shrubs until meadow is established. After that point mowing frequency can be decreased to one mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

PLANTING

Planting of non-native shrub areas should proceed after clearing, and any soil amending or sheet mulching has been completed. Thickets adjacent to existing forest should be converted to native woody plant communities (trees and/or shrubs). Thickets adjacent to existing upland meadow should be converted to native shrubs, oak or madrone savannah, or limited areas of meadow. Thickets adjacent to wet meadows should be replaced with native shrubs.

AMENDING SOILS

Soil amending throughout the planting area may be necessary or desirable after non-natives have been cleared and prior to planting.

WEEDING AND INVASIVE CONTROL

Non-native shrub thickets consist largely of Himalayan blackberry and Scot's broom. Control and removal strategies for these two species are very similar.

5.1.3 Upland Meadow Management Area

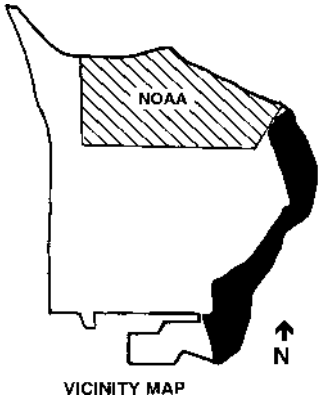
The upland meadows in this Zone, like the non-native shrub thickets, are concentrated at the north and south ends of the Zone. Large meadow areas are interspersed with these thickets north of the swimming beach and beyond to the north boundary of the Zone. The meadows in the south are located straddling the boat ramp access road, and to the north and south of the south parking lot.

These areas are to be managed as meadow habitat to prevent colonization by both non-native and native woody species. This management will consist of a mowing regimen, and might possibly also include regular hand weeding as necessary. Mowing is to be done late enough in the growing season (September) to accommodate bird nesting season as well as seed head production for wildlife forage.

Management and Maintenance Annual Calendar
Shoreline Zone – Upland Meadow Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
Establishing Meadow												
Maintaining Meadow									•			
Weeding and Invasive Control												
Trees	▒	▒	▒	▒	▒	▒	▒	▒	▒			
Shrubs	▒	▒	▒	▒	▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

ESTABLISHING MEADOW

Remove remnant pavement from upland meadow areas north of the swimming beach and east of the promenade and restore to meadow. Establishment would include seeding, weeding, mowing, and possibly soil amending.

MAINTAINING MEADOW

Upland meadows are to be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. This will consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

WEEDING AND INVASIVE CONTROL

Non-native poplars are the most common invasive tree species encountered in meadows. The most common invasive shrubs are Himalayan blackberry, Scot's broom, and non-native hawthorn. Problematic herbaceous species often encountered include Canada thistle in meadow areas, and bindweed in newly planted areas.

5.1.4 Tree/Shrub Savannah Management Area

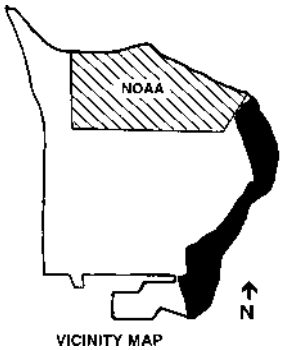
Tree/Shrub Savannah areas in the Shoreline Zone are limited to a 50-100 ft.-wide band wrapping around the south end directly across the road from Promontory Point and along the shoreline itself; and a 2.5-3 acre patch between the boat ramp and the bathroom facility. These areas should be managed as upland meadows interspersed with small clusters of native trees or shrubs. To achieve this, management actions must include a mowing regimen to maintain the meadow habitat, removal of non-native trees and shrubs, and replacement with appropriate native tree and shrub species to approximate the existing pattern of meadow interspersed with clumps of woody vegetation.

Tree/Shrub Savannah at the southernmost shoreline in this Zone should be managed to maintain existing spectacular views of Mt. Rainier from the high shoreline north of the USGS intake pumps, and to establish and encourage a wildlife corridor between Promontory Point and the lakeshore at the southernmost end of this MA (south of the USGS intake pumps). No meadow maintenance mowing should be done in this MA south of the USGS intake pumps at the south shoreline.

Management and Maintenance Annual Calendar
Shoreline Zone – Tree/Shrub Savannah Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	•	•	•	•	•	•	•	▒	▒	▒	▒	▒	▒
Maintaining Meadow															•							
Planting																						
Trees			▒	▒	▒	▒												▒	▒	▒	▒	
Shrubs			▒	▒	▒	▒												▒	▒	▒	▒	
Removing Plants	•	•	•	•	▒	▒	▒	▒	▒	▒	▒	▒	•	•	•	•	•	•	•	•	•	•
Weeding and Invasive Control																						
Trees										▒	▒	▒	▒	▒	▒							
Shrubs								▒	▒	▒	▒	▒	▒	▒	▒							
Herbs							▒	▒	▒	▒	▒	▒	▒	▒								

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native trees and shrubs or are installed in meadow areas.

MAINTAINING MEADOW

Upland meadows portions of the savannah are to be actively managed to prevent further colonization by native woody plants and invasion by non-native species. Maintenance actions should consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed. No mowing should be done south of the USGS intake pumps on the southernmost shoreline as this area is being converted to a tree/shrub plant community, improving the link between Promontory Point and the lakeshore.

PLANTING

Native trees should replace non-native trees that are removed from these savannah areas. Native replacements can be planted in the same location or in adjacent or nearby forest areas. Native shrubs should replace non-native shrubs that are removed, but should be planted in the same location as those plants that are removed. Planting at the southernmost shoreline Tree/Shrub Savannah should not diminish the spectacular existing views of Mt. Rainier. Islands in the parking lot south of the boat ramp should be planted with clusters of xeric native trees and shrubs (madrone, Douglas fir, Garry oak, oceanspray, mock orange, woods rose) to improve the aesthetics of the parking lot, provide shade, and provide a more unifying theme between the built and natural portions of the park.

REMOVING PLANTS

Removals other than invasives are intended to be performed only in the case of hazard trees or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

WEEDING AND INVASIVE CONTROL

Non-native poplars are the most common invasive tree species encountered in these savannah areas. The most common invasive shrubs are Himalayan blackberry, Scot's broom, and non-native hawthorn. Problematic herbaceous species often encountered include Canada thistle. Woody debris resulting from removal of invasive trees or shrubs that do not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat features such as brush piles, LWD, snags, or stumps. Wood that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) as it is no longer viable.

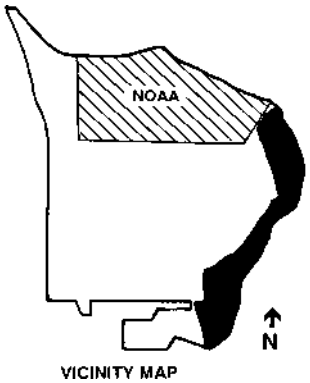
5.1.5 Mowed Grassland Management Area

Mowed grassland is found in and around high human activity areas in this Zone – from the swimming beach south to the boat ramp, and south of the boat ramp associated with the parking lots and picnic shelter. Grassy areas are interspersed with trees and shrubs directly along the shoreline, and with planted specimen trees inland of the sand near the bathrooms. These grassy expanses should continue to be managed as mowed grassland to welcome human uses such as picnicking, sunbathing, and other informal recreational activities. Along the shoreline itself where pockets of woody vegetation are currently found, invasive species should be controlled and vegetation should be managed to feature native species that will enhance and stabilize the shoreline for wildlife. Inland areas should feature individual or groupings of non-invasive specimen trees and/or shrubs for aesthetics and to provide shade and focal points for people.

Management and Maintenance Annual Calendar
Shoreline Zone – Mowed Grassland Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	▒	•	•	▒	▒	▒
Planting												
Trees		▒	▒	▒						▒	▒	
Shrubs		▒	▒	▒						▒	▒	
Pruning	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Removing Plants	•	•	•	•				•	•	•	•	•
Taking Care of Turf	•	•	•	•	•	•	•	•	•	•	•	•
Weeding and Invasive Control												
Trees							▒	▒	▒			
Shrubs						▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native trees and shrubs.

PLANTING

Immediately along the shoreline itself, where pockets of woody vegetation are currently found, invasive species should be controlled and replaced with typical native riparian trees and shrubs. Further inland, the plant palette can include appropriate non-invasive non-native species as specimen plantings, but all non-native invasive species or species prone to disease should be incrementally replaced.

PRUNING

Prune trees and shrubs throughout as needed for plant health and public safety.

REMOVING PLANTS

Removals are intended to be performed only in the case of hazard trees or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from removal of invasive trees or shrubs that do not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat features such as brush piles, LWD, snags, or stumps. Wood that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable. Norway maples, and crabapples, in particular, are stressed, diseased, and misshapen in this MA. Pines near the picnic shelter south of the boat ramp are stressed and should be evaluated for health.

TAKING CARE OF TURF

Turf care activities occur throughout the year. Mowing in particular should be done with attention to protect existing desirable shoreline vegetation and large tree roots.

WEEDING AND INVASIVE CONTROL

Regular and frequent mowing in this MA greatly reduces the occurrence of invasives, and limits them to the outer edges, in particular along the shoreline edge where they root in the bank among desirable natives. Typically, Himalayan blackberry, Scot's broom, reed canary grass, and yellow iris are the common invasives present here, all of which should be removed and replaced with natives. Patches of Japanese knotweed are also present, and should be prioritized for removal to prevent further spread. Non-native poplar is also found along the shoreline edge and inland. The swimming beach area has a number of Norway maples. Incremental removal and replacement of these tree species is recommended.

Woody debris resulting from removal of invasive trees or shrubs that do not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat features such as brush piles, LWD, snags, or stumps. Wood that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

5.1.6 Nearshore Management Area

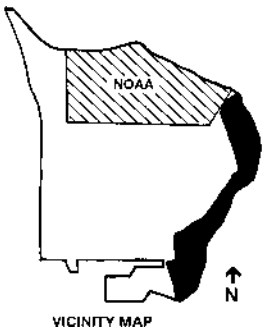
The Nearshore MA is a narrow strip waterward of the shoreline and includes the shallow beach and water-land interface along the entire length of the Shoreline Zone. It is included as a Management Area because it is a critical link to improving this edge habitat for wildlife, particularly native fish, as well as improving access to the shoreline for people, and reducing shoreline erosion. In addition, shallow shoreline areas with fringing emergent and aquatic bed vegetation are the most biologically productive habitats in the lake environment. Actions in this MA to restore this type of natural vegetated shoreline start with removal of rubble and debris to restore a substrate and slope that can be planted. Removing concrete rubble and debris along this riparian edge to restore a more natural shoreline substrate, reshaping portions of the shoreline to create more gently sloping pocket beaches, and planting the edges of these pocket beaches with riparian vegetation are the main management actions for this MA.

Management and Maintenance Annual Calendar
Shoreline Zone – Nearshore Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	☐	☐	☐	☐	☐	☐	•	•	•	☐	☐	☐
Planting												
Trees		☐	☐	☐						☐	☐	
Shrubs		☐	☐	☐						☐	☐	
Herbs		☐	☐	☐					☐	☐	☐	
Live Stakes	☐	☐									☐	☐
Removing Nearshore Rubble[1]												
Restoring Pocket Beaches[2]												

☐ Indicates range of time to perform action as needed
• Indicates specific time to perform action

[1] Removal and timing of concrete bulkheads will be dependent upon permit conditions from WDFW and Corps of Engineers.
[2] Restoring pocket beaches and placing gravel in the nearshore environments will be dependent upon permit conditions from WDFW, the Corps of Engineers, and City of Seattle Shoreline permit conditions.



3 YR. ESTABLISHMENT CARE

This care will not include mulching or watering, and will likely require a far less intensive effort with regard to weeding than in typical upland areas since planting in this MA will only be done at water's edge and slightly above.

REMOVING NEARSHORE RUBBLE AND RESTORING POCKET BEACHES

Concrete rubble and debris occurs along a large portion of the shoreline from the bank outwards anywhere from approximately 5-20' offshore. This material creates an abrupt edge, with an unnatural substrate, and prevents establishment of desirable emergent and aquatic bed vegetation. Removal will require numerous permits including WDFW HPA (Hydraulic Project Approval), U.S. Army Corps Section 401 and/or 404 (which will trigger a Biological Assessment), City of Seattle Shoreline Permit, and SEPA. This work should only be done with consultation and detailed planning from a shoreline processes specialist and/or hydrogeomorphologist. Importing round gravels in a range of smaller sizes to restore optimal substrate may be necessary. Creation of pocket beaches and shoreline reshaping should be done to dissipate wave energy, and to create more desirable nearshore conditions for native fish species. Pocket beach creation should include a stepped grade at the beach-to-grass transition to discourage goose access. Installation of LWD in selected areas of the MA may be advised, but should be done judiciously so as not compromise water access or safety for people. Planting of portions of the newly created shallows will also likely be a component of work to be performed in the Nearshore MA to help dissipate wave energy as well as limit goose access to the grassy, high human use areas upslope.

Specific areas and actions are described as follows:

In south nearshore high bank areas, leave bank as is but remove concrete rubble in the water and at the toe of the bank. Where there are existing trees and shrubs, plant the toe of the bank with native willows. Remove and replace non-native trees and shrubs with appropriate native species incrementally, and control the invasives. Where there are no existing trees and shrubs, remove any invasives, and experiment with drill-planting tubelings of low-growing upland native shrubs such as snowberry and rose into the upper portions of the bank.

In nearshore area directly south of the boat ramp, remove armoring and stabilize the bank with bioengineering techniques such as heavy planting of willows and other riparian shrubs along the toe of the bank. Planting should extend upslope and blend with management for the mowed grassland here. This would also help screen the boat ramp activities from the picnic shelter area. In low bank areas further south, continue the pattern of pocket beach creation already present, sloping the shoreline and adding fine, round gravels to the substrate as necessary. Plant along the edges of pockets mimicking the existing pattern.

In the nearshore area directly north of the boat ramp, maintain the existing riparian corridor, remove and replace invasive species (yellow iris, purple loosestrife), and remove concrete rubble and armoring to replace with dense planting of willows and

other riparian shrubs at the toe of the bank. Maintain the viewpoint to the south towards Mt. Rainier by limiting the northward extent of new vegetation in this area. Create series of pocket beaches with gently sloping shoreline, appropriate-sized gravels, and edge planting extending northwards from the boat ramp to the bathroom structure to tie in with restored pocket beaches north of the bathroom structure. As part of the improvements to habitat, retrofit the existing boat docks with more fish-friendly open metal decking to allow light beneath the structures and reduce habitat for salmonid predators.

In the nearshore area north of the swimming beach, continue the pattern of enhanced pocket beaches with larger patches of native riparian vegetation to replace existing non-natives and to create pockets of vegetation in large open areas. Remove rubble. Combine nearshore restoration and bank planting with upland, non-native shrub thicket conversion, between the water's edge and the promenade. Management of these areas should focus more on improving habitat quality than on care of more intensive human use swimming areas and mowed grasslands to the south. Revegetation should include more trees in larger groves, building on and enhancing the existing pattern. Pocket beaches here are still meant to offer secluded access and water views for people as they currently do.

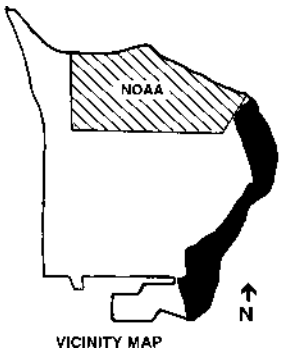
5.1.7 Wetland Management Area

The Wetland MA in this Zone is associated with a swale on the north side of the boat ramp. The designation of the area as wetland was made on the basis of vegetation – regulatory determination of wetland presence was not conducted and no wetland delineation was done. This MA is less than 100' in width for its entire length stretching east-west across the Zone from the shoreline road to the boat ramp. No work should be done in this MA without consultation with a wetland ecologist or biologist to develop a specific invasive control, replanting, and monitoring plan. Management should focus on removal of invasives and replacement with appropriate wetland and riparian species, and increasing native species diversity and structural complexity of the plant community. Both purple loosestrife and yellow iris are present here in limited areas, and should be a priority for control and removal. The practices outlined below assume professional assistance, therefore they are not as specific as for other MAs.

Management and Maintenance Annual Calendar
Shoreline Zone – Wetland Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Planting												
Trees			▢	▢	▢					▢	▢	▢
Shrubs			▢	▢	▢					▢	▢	▢
Herbs					▢	▢	▢		▢	▢	▢	
Pruning	•	•	•	•				•	•	•	•	•
Removing Plants	•	•	•	•				•	•	•	•	•
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs						▢	▢	▢	▢			
Herbs					▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed plantings in the buffer and possibly within the wetland as well.

PLANTING

Planting should only be done with a commitment for 3 year establishment care. Species selection should reflect microclimate and hydrologic conditions at each planting site, but should be Puget lowland native species typical of wetlands subject to severe periodicity and prolonged drought.

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall as woody debris. Misshapen or hazardous limbs may not be critical issues in wetland areas where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

REMOVING PLANTS

Other than invasives, removals should be performed only in the case of hazard trees, or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

WEEDING AND INVASIVE CONTROL

Weedy and invasive species most likely to be problematic in this MA include: Himalayan blackberry, non-native poplar, yellow iris, purple loosestrife, and reed canarygrass. Woody debris resulting from invasive control that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable. Weeding and removal of shrub and herbaceous species should take place during the growing season with as-needed frequency but at least monthly in the first year after installation.

5.2 Promontory Point Zone

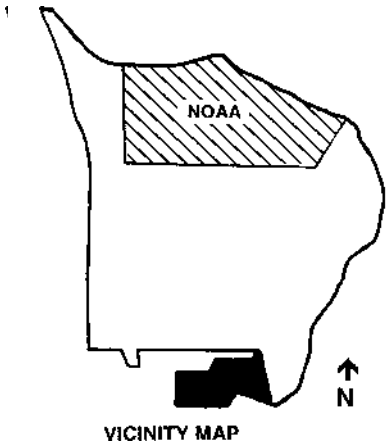
5.2.1 Upland Meadow Management Area

The Upland Meadow MA consists of a northwest, southwest, and northeast meadow. The northwest meadow currently has the most intact meadow habitat and should be a high priority to maintain. The southwest meadow is currently in the process of being established and should be used to evaluate methods to inform future meadow establishment both in the Promontory Point Zone as well as throughout the Park. The northwest meadow in Kingfisher Basin is in a particularly impacted part of the Zone. The eastern portion of this meadow includes the Education Pavilion and Butterfly Garden, and the main public entrance to this Zone.

Management and Maintenance Annual Calendar
Promontory Point Zone – Upland Meadow Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
Establishing Meadow			▒	▒	▒	▒	▒	▒	▒	▒		
Maintaining Meadow									•			
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Removing Plants	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Amending Soils							▒	▒	▒			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



ESTABLISHING MEADOW

Continue meadow establishment in the southwest meadow and evaluate feasibility for the northeast meadow in Kingfisher Basin. The non-native shrub thicket in the northwest meadow can be replaced with native shrubs and/or trees, or converted to meadow. Some limited meadow areas can be established in cleared thicket areas that are adjacent to existing upland meadows. This will be the most labor-intensive and difficult plant community to establish in these areas due to the level of invasive control that will be needed. For these reasons, and because of the prevalence of this habitat type at the Park currently, establishing more meadow may not be the most desirable choice for both ecological and economic reasons. Establishment would include seeding, weeding, mowing, and possibly soil amending.

MAINTAINING MEADOW

Upland meadows are to be actively managed to prevent further colonization by native woody plants and invasion by non-native species. Maintenance actions will consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species which would be mostly Himalayan blackberry and Scot's broom, as well as non-native poplar species. Some regular hand-weeding to control invasives may also be needed.

PLANTING

Removal of non-native shrub thickets may result in planned conversion to a forest or shrub community in meadow interiors or along forest-meadow interface.

PLANT REMOVAL

Removals other than invasives are intended to be performed only in the case of hazard trees, or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

AMENDING SOILS

Soil amendments may be necessary in future meadow planting areas such as the northeast meadow in Kingfisher Basin depending on soil quality and lessons learned from southwest meadow establishment project currently underway. Amending should only be done in conjunction with intended planting.

WEEDING AND INVASIVE CONTROL

Hand-weeding to supplement weed suppression by mowing may be needed to control invasives and other woody species. All woody species (native or non-native) are undesirable if upland meadows are to be maintained at that successional stage, and weedy herbaceous species should also be controlled. Weeding should be timed so that weeds are removed before they attain size and before flowering occurs. Woody

debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

Weeding and removal of shrub and herbaceous species should take place during the growing season with as-needed frequency but at least monthly in the first year for newly planted areas. Weedy and invasive species most likely to be problematic in this MA include Himalayan blackberry, Scot's broom, hawthorn, non-native poplar species, bindweed, and Canada thistle.

5.2.2 Upland Forest Management Area

The Upland Forest MA covers a large portion of the Zone and consists of upland forested ridges and slopes radiating off a main spine running north-south down the middle of the Zone. This MA contains more than half of the total upland forest area in the Park east of Sportsfield Drive. The occurrence of and coverage by invasive species in the forested areas is highly variable ranging from heavy infestations to much more sparse or patchy coverage. Management of the forest should focus on preserving and enhancing the following:

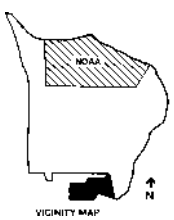
- interior areas of mild infestation where invasive control and eradication is more easily accomplished and intact plant communities can remain so by establishing and maintaining an 'invasive front';
- areas which are known to be prime habitat areas or are in an important landscape setting from a habitat perspective; and
- areas that have already been the focus of invasive removal and replanting efforts.

Evaluating relative importance in a landscape setting might include considerations for connectivity between habitats, location and continuity of wildlife corridors, ecotones (interface of two different types of habitat), and buffers. Lower priority management efforts should go towards habitat improvement (invasive control and replacement with natives) in severely infested areas that will require the greatest level of initial effort and follow-up care.

Management and Maintenance Annual Calendar
Promontory Point Zone – Upland Forest Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒	▒	▒				▒	▒	
Pruning	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Removing Plants	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed woody plantings that replace non-native trees and shrubs.

PLANTING

Planting should only be done with a commitment for 3 yr. establishment care. Species selection should reflect microclimate conditions at each planting site, but should be Puget lowland native species typical of an upland forest.

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall to the forest floor as woody debris. Misshapen or hazardous limbs may not be critical issues in the interior of woodlands or forests where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

REMOVING PLANTS

Other than invasives, removals should be performed only in the case of hazard trees, or of diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. If tree does not pose a threat to public safety, girdling or trimming as needed to leave standing dead wood for snag habitat is preferable to complete removal. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

WEEDING AND INVASIVE CONTROL

Weedy and invasive species most likely to be problematic in this MA include: Himalayan blackberry, English ivy, laurel, clematis, bindweed, hawthorn, non-native poplar, and Scot's broom. Woody debris resulting from invasive control that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable. Weeding and removal of shrub and herbaceous species should take place during the growing season with as-needed frequency but at least monthly for the first year in newly planted areas.

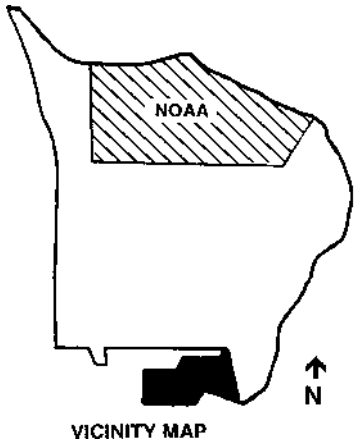
5.2.3 Non-native Shrub Management Area

The Non-native Shrub MA is patchy throughout the Zone, but is found mainly in the northwest meadow, on the west-facing slope east of the USGS laboratory, and along the north side of the perimeter trail along the south boundary of the Zone. These thickets can be removed and converted to native communities as follows: convert thicket in NW meadow to native shrub or limited areas of meadow, convert thicket near USGS to native shrubs and trees, convert thicket along perimeter trail to native shrubs.

Management and Maintenance Annual Calendar
Promontory Point Zone – Non-native Shrub Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management And Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	•	•	▢	▢	▢	▢	▢	▢
Establishing Meadow				▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢				
Maintaining Meadow														•						
Planting																				
Trees			▢	▢	▢	▢										▢	▢	▢	▢	
Shrubs			▢	▢	▢	▢										▢	▢	▢	▢	
Herbs					▢	▢	▢	▢	▢	▢					▢	▢				
Amending Soils											▢	▢	▢	▢	▢	▢				
Weeding and Invasive Control																				
Trees										▢	▢	▢	▢	▢	▢					
Shrubs								▢	▢	▢	▢	▢	▢	▢	▢					
Herbs							▢	▢	▢	▢	▢	▢	▢	▢						

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed woody plantings that replace non-native trees and shrubs.

ESTABLISHING MEADOW

Some limited meadow areas can be established in cleared thicket areas that are adjacent to existing upland meadows. This will be the most labor-intensive and difficult plant community to establish in these areas due to the level of invasive control that will be needed. For these reasons, and because of the prevalence of this habitat type at the Park currently, establishing more meadow may not be the most desirable choice for both ecological and economic reasons. Establishment would include seeding, weeding, mowing, and possibly soil amending.

MAINTAINING MEADOW

Any newly established meadows created as conversion from non-native shrub thicket must be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. Annual mowing will be necessary to adequately control re-sprouting shrubs until meadow is established. After that point mowing frequency can be decreased to one mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

PLANTING

Planting should proceed after clearing of invasives and any soil amending and/or sheet mulching is completed

AMENDING SOILS

Soil amending throughout planting area may be necessary or desirable after non-natives have been cleared and prior to planting.

WEEDING AND INVASIVE CONTROL

Non-native shrub thickets consist of Himalayan blackberry and Scot's broom. Control and removal strategies for these two species are very similar. Thickets should be replanted, converting them to native plant communities incrementally as specified in Section 6.11.

5.3 Forest Remnant Zone

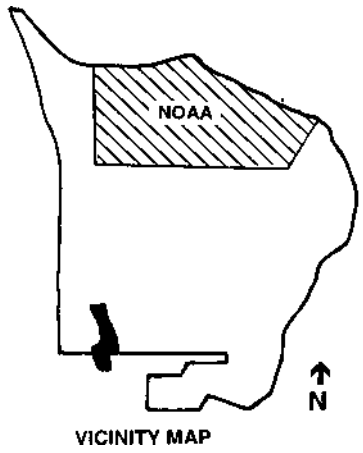
5.3.1 South Woodland Management Area

Treatment types for this area are directed toward preserving existing, high caliber vegetation, healing construction-related damage, eliminating invasives, and enhancing quality of habitat and plant community long term.

Management and Maintenance Annual Calendar
Forest Remnant Zone – South Woodland Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒					▒	▒		
Pruning	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Removing Plants	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Amending Soils							▒	▒	▒			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs				▒	▒	▒	▒	▒	▒			

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Areas cleared of invasives and/or replanted must be well-mulched to suppress re-growth of unwanted plants and to conserve soil moisture.

PLANTING

Trees

Although canopy is mostly closed and in good condition, additions are needed to correct damage related to surrounding construction, and secondarily to replenish and diversify the stand. Several perimeter trees, particularly Western red cedars along the west edge, have visible as well as potential root zone damage. Replant in kind, in a ratio of at least 3:1, for any declining or removed tree. In addition, the rough cat track bisecting the MA should be replanted after completing construction debris cleanup and soil decompaction. Species should echo surrounding mix, and include madrona and Douglas fir to take advantage of the created light gap. Canopy and understory tree additions elsewhere in the grove should follow a detailed walk-through evaluation, marking specific need and opportunity sites. Species selection should reinforce existing native taxa, with a balance of evergreen and deciduous trees.

Shrubs

Relative to many urban forest fragments, this area possesses much intact native undergrowth. Understory plantings are needed mostly to reclaim areas where natives have been lost to invasive incursion or physical destruction. A full complement of appropriate species exists on-site, to extend and match wherever replanting is slated: sword fern, salal, Oregon grape, thimbleberry, trailing blackberry, bracken, fireweed, ocean spray, Indian plum, hazel. Ongoing trampling and wildlife disturbance pressure on this woodland will be high, given adjacent, intensive residential use. Sturdy protective fencing – at a minimum – needs to be installed concurrent with planting, to safeguard understory establishment. Permanent full perimeter fencing, while desirable from a resource protection standpoint, may not be feasible from a political or budgetary standpoint. Alternate strategies for controlling access and preventing habitat fragmentation need to be developed on a proactive basis: formal trail construction, brushy, thorny perimeter plantings, signage, public education, etc.

Herbs

As a complement to woody understory plantings, herbaceous natives may be added where and when opportunities present themselves. Such additions constitute enrichment more than necessity in the continuum of forest restoration need, trees and shrubs being more urgently required.

Pruning

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall to the forest floor as woody debris. Misshapen or hazardous limbs may not be critical issues in the interior of woodlands or forests where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

Removing Plants

Plant removals other than invasives are limited to trees determined to be hazardous, with high target potential. Perimeter trees adjacent to current or recent construction sites should be evaluated at least annually for hazard condition and appropriate removals promptly undertaken. When possible, removals should be done between August and March to avoid potential disruption of nests. Downed wood may prove useful to help discourage physical access to interior of MA.

Amending Soils

Soil amendment may be needed where heavy equipment has scarred the ground. Where subsoils poor in nutrients and organic matter are exposed, deep tilling to replenish both should precede revegetation planting. Extremely compacted disturbed soils should be mechanically ripped to open them up before amending. Deep mulching after planting will be especially important as an adjunct to advance soil preparation in such areas as the cat track.

Weeding and Invasive Control

Shrubs

Although much of this MA is an intact native plant community, perimeter invasive encroachments need to be eliminated to protect against loss of high quality interior vegetation. Priority should be given to removing blackberry and ivy infestations, principally along the northeast edge of the woodland area. A secondary need is to remove, or girdle, herbicide treat and leave standing, upright shrubby invasives (laurel, holly, hawthorn, cotoneaster, viburnum) to provide woody habitat debris. Thereafter, annual monitoring and spot removals should keep the area nearly invasive-free, especially if coupled with proactive native planting of all disturbed ground.

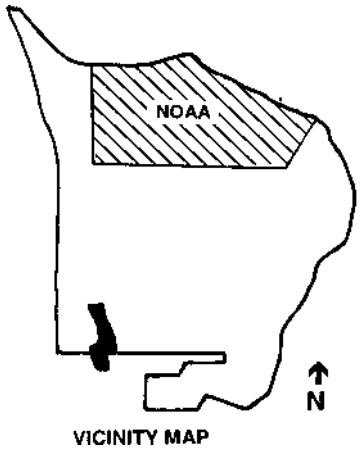
5.3.2 North Woodland Management Area

Treatment types for this area focus on remedying major, diverse invasives problems, including exotic tree removal, creating a sustainable native canopy, re-establishing a native understory plant community, and protecting the stand from fragmentation.

Management and Maintenance Annual Calendar
Forest Remnant Zone – North Woodland Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▭	▭	▭	▭	▭	▭	▭	•	•	•	•	•	•	▭	▭	▭	▭	▭	▭
Mulching	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭	▭
Planting																			
Trees			▭	▭	▭	▭										▭	▭	▭	▭
Shrubs			▭	▭	▭	▭										▭	▭	▭	▭
Herbs					▭	▭	▭	▭						▭	▭	▭	▭		
Pruning	•	•	•	•									•	•	•	•	•	•	•
Removing Plants	•	•	•	•									•	•	•	•	•	•	•
Amending Soils											▭	▭	▭	▭					
Weeding and Invasive Control																			
Trees									▭	▭	▭	▭	▭	▭					
Shrubs								▭	▭	▭	▭	▭	▭	▭					
Herbs					▭	▭	▭	▭	▭	▭	▭	▭	▭						

▭ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

All new plantings require followup care for three years to insure their healthy survival.

MULCHING

Areas cleared of invasives and/or replanted must be well-mulched to suppress regrowth of unwanted plants and to conserve soil moisture.

PLANTING

Trees

In contrast to the South Woodland, this MA needs significant canopy replenishment:

1. Offset loss of numerous mature alders which soon will enter natural decline (in addition to few, very large bigleaf maples), by underplanting with hazel, vine maple and western red cedar, which already exists in the stand but only as two mature specimens. Conifers were likely once plentiful in this woodland, before disturbance.
2. Recreate canopy once invasive trees are removed, notably at the northeast end of the stand. Here the opportunity exists to plant madrona, grand and Douglas fir as well as well as cedar, because large canopy gaps will be created. Complementary deciduous species plantings are also recommended, especially low-growing taxa for understory and peripheral locations. The palette should reflect natives already present at Sand Point Magnuson Park, but not limited to those found in this MA itself.
3. Insure canopy continuity long-term, by supplementing existing tree population wherever opportunities to plant exist - or develop. Spot openings that present themselves should be exploited for tree replenishment, as scattered short-lived or invasive individuals come out, or blowdowns occur. Long-lived native conifers should be the main taxa planted.
4. Remediate severe loss of native vegetation due to invasive smothering, systematic planting of additional, shade-tolerant understory tree species should be undertaken.

Shrubs

Because invasive shrubs and vines have degraded such large areas of this woodland, understory replenishment constitutes a major aspect of forest restoration. After invasive control is underway, both low and mid-height shrub layers should be re-established. Islands of intensive planting using suckering species may work well, but a variety of approaches may be attempted. Where slope is very steep, plant through erosion control fabric and mulch bare ground heavily. Intact understory in the adjacent South Woodland MA provides direction for an appropriate indigenous palette, although additional species may also thrive. Competitive success is important in this MA.

Herbs

As a complement to woody understory plantings, herbaceous natives may be added where and when opportunities present themselves. Such additions constitute enrichment more than necessity in the continuum of forest restoration need, trees and shrubs being much more urgently required.

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall to the forest floor as woody debris. Misshapen or hazardous limbs may not be critical issues in the interior of woodlands or forests where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

REMOVING PLANTS

Plant removals other than invasives are limited to trees determined to be hazardous, with high target potential. When possible, removals should be done between August and March to avoid potential disruption of nests. Unless formal trails are constructed through this woodland in the future, only perimeter trees adjacent to 65th and the Officer's Row houses will require annual inspection for hazard. Any downed wood resulting from hazard tree abatement should be retained on site to discourage foot traffic and enhance wildlife habitat.

WEEDING AND INVASIVE CONTROL

Trees

An unusually large number of reproducing non-native trees is present in the North Woodland area, the core grove apparently intentionally-planted decades ago near the MA's north end. These include London plane, Norway maple, horse chestnut, Lombardy poplar and European white birch, ranging in size from 9 - 24" diameter. Among offspring growing in their close proximity, some by now are sizable trees in their own right. In addition, scattered self-sown apple, cherry, hawthorn and European mountain ash trees occupy the canopy, many mature. These latter species, all randomly reseeded by animal transport into wild areas, are less troublesome than the first group which successfully reproduce in their own shade to the eventual exclusion of all other vegetation.

Non-native trees should be eliminated from this MA, with varying degrees of urgency. Although the absolute numbers are small, the percent of total canopy is significant. Removals therefore should be phased, and coordinated with major tree replanting. Taking care of the worst first, Norway maple and horse chestnut are the top priority, followed closely by London plane and Lombardy poplar, which reproduces aggressively vegetatively, as well as by seed. The second group of non-indigenous trees ultimately should be excluded from this native vestige forest as well, by a combination of active removal and attrition. Young

progeny of all the above species should be sought out annually and quickly uprooted. The four Sawara cypress trees can be eliminated by attrition over time.

Shrubs

Both perimeter and interior invasive plant encroachments need to be eliminated, to protect both trees and remaining, intact native understory vegetation. Priority should be given to removing vine infestations, notably ivy engulfing trees in the south half of the area. Large-scale blackberry eradication is also needed, again principally in the south half of the MA, and along the north edge. A secondary need is to remove, or girdle, herbicide treat and leave standing, upright shrubby invasives (laurel, holly, hawthorn) to provide woody debris for wildlife.

Herbs

Morning glory is abundant in the upper portion of this MA and should be actively controlled, with the goal of elimination.

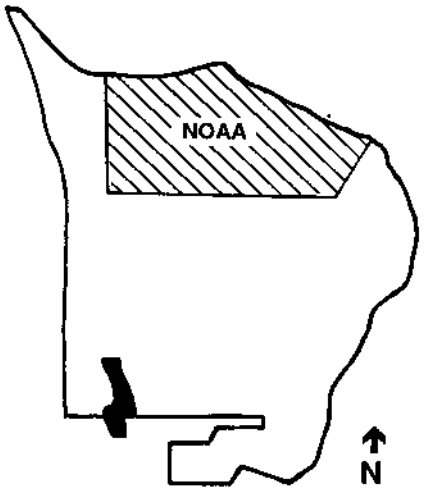
5.3.3 Open Forest Margin Management Area

Vegetation treatments in this area are directed toward expanding the adjacent, remnant woodland, and preventing invasive woody plants from further establishing.

Management and Maintenance Annual Calendar
Forest Remnant Zone – Open Forest Margin Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒					▒	▒		
Pruning	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Removing Plants	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Amending Soils							▒	▒	▒			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs					▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Areas cleared of invasives and / or replanted must be well mulched to suppress re-growth of unwanted plants and to conserve soil moisture.

PLANTING

Develop a restoration planting plan for trees, shrubs and herbaceous natives before commencing planting, whether phased or by means of a single project. This area would lend itself particularly well to a large volunteer planting effort.

Trees

Plant trees throughout the area to expand adjacent forest, intermixing coniferous and deciduous species: Douglas fir, hazel and bigleaf maple on driest land, blending into alder, Sitka spruce, vine maple and cedar in lower sites and wetland pockets.

Shrubs

Plant understory and edge species throughout the area, with emphasis on aesthetics and wildlife value. In wet areas, add redtwig dogwood, ninebark, red elderberry and other moisture-loving native shrubs with ornamental character. Include at least half evergreen species.

Herbs

Some robust herbaceous species should be included in restoration plantings: additional sedges, plus, for example, lady fern, low bleeding heart.

WEEDING AND INVASIVE CONTROL

Trees

Non-native Lombardy poplars, while few, should be eliminated along with their suckers. Herbicide application to freshly-cut stems probably will be needed to achieve complete root kill and prevent re-sprouts.

Shrubs

A sparse Scot's broom population should be eliminated as a top priority, to prevent substantial colonies from taking hold.

Herbs

Existing grasses and forbs presumably are mostly exotic in this heavily-disturbed environment. To re-establish forest vegetation, meadow plants should be smothered or tilled under with heavy mulching prior to reforestation planting. Maintain mulch cover should interval between clearing and planting be protracted.

5.4 Historic District Zone

Treatment for all Historic District management areas shares two common elements which have direct bearing on vegetation management: first, a comprehensive tree inventory and its analysis, and second, 1998 Historic Properties Reuse and Preservation (HPRP) Plan jurisdiction. All landscape maintenance, design and alteration work undertaken in this Zone needs to make active use of both. Treatment recommendations given for individual MA's reflect these inventory findings and HPRP requirements.

Vegetation management plan users also should acquaint themselves with both Appendix B – Sand Point Historic District Documents and Appendix C - Sand Point 2001 Tree Inventory. Among other things, Appendix B lists, maps and illustrates vegetation-related HPRP "Historic Landscape Features and View Corridors to be Preserved and Maintained," and provides lists of historic planting plans and plant material for future use. Appendix C identifies Priority Management Trees, with recommended action(s) linked to individual trees, sorted according to MA. This list adds implementation specifics to more generalized treatment text provided below. The complete, baseline tree inventory is available electronically; and its use as an ongoing vegetation management tool is strongly encouraged.

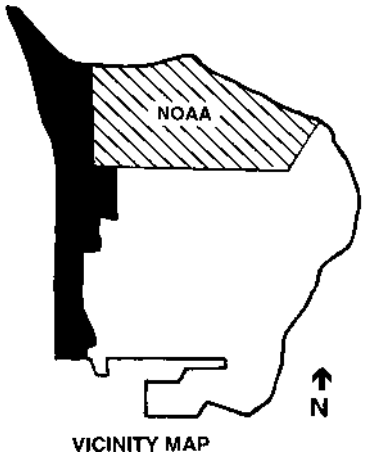
5.4.1 North Shore Recreation Management Area

Treatment in this area focuses on containing invasives until redevelopment occurs, preserving native plantings, and laying out appropriate future actions to enhance shore and upland habitats.

Management and Maintenance Annual Calendar
Historic District Zone – North Shore Recreation Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	•	•	•	•	▢	▢
Maintaining Meadow									•			
Mulching	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Planting												
Trees		▢	▢	▢						▢	▢	▢
Shrubs		▢	▢	▢						▢	▢	▢
Herbs			▢	▢					▢	▢		
Live Stakes	▢	▢	▢								▢	▢
Pruning	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Removing Plants	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Amending Soils							▢	▢	▢			
Weeding and Invasive Control												
Trees						▢	▢	▢	▢			
Shrubs					▢	▢	▢	▢	▢			
Herbs					▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MAINTAINING MEADOW

Existing meadow-like areas should be maintained to prevent being overtaken by woody vegetation.

MULCHING

Areas cleared of invasives and/or replanted must be well mulched to suppress re-growth of unwanted plants and to conserve soil moisture.

PLANTING

Develop restoration planting plans for trees, shrubs and herbaceous natives before commencing any more than spot planting, whether to be implemented incrementally or as a single project. Shoreline restoration plantings are to be consistent with treatments and palette outlined under Nearshore Management Area within Shoreline Zone, elsewhere in this document. Upland plantings are to remain largely unaltered until major development occurs.

Trees

Near-term tree planting will be limited to transplanting young natives, if culturally appropriate sites well clear of anticipated site alterations can be identified and prepared. Species include Oregon ash and cascara, the latter in far better condition than the former. Given the effort involved, it may be more sensible to radically thin this overplanted upland stand, culling poor stems and removing many trees to other zones or parks. Long-term, native tree planting in scattered or grove configurations should occur. This site could provide excellent Garry oak or madrona habitat, in addition to limited native species already present (Douglas fir, cedar, alder).

Trees removed from formal settings adjacent to Building 11 and NE NOAA Drive for reasons of decline, hazard or invasiveness should be replaced with uniform rows of trees from similar but less problematic taxa. When replacing blireiana flowering plums along Building 11, respect original character as documented in archived 1942 planting plan. Appropriate replacement species include: *Prunus ceracifera 'Mt. St. Helens', Amelanchier 'Autumn Brilliance', Prunus yedoensis 'Akebono'*.

Potential Lombardy poplar substitutes include columnar flowering and coniferous trees as well as deciduous shade trees*: Quercus robur 'Fastigiata', Fagus sylvatica 'Dawyck', Ginkgo biloba 'Princeton Sentry', Pyrus calleryana 'Capital', Prunus serrulata 'Amanogawa'* (smaller stature tree), *Calocedrus descurrens, Picea omorika.* Final selection should be made with consideration of overall effect parkwide of Lombardy row replacements, balancing visual continuity with species diversity.

Shrubs

New understory plantings are to be deferred until such time as site development occurs. Palette should be predominantly native, entirely so along the water's edge, and selected to match particularities of aspect, moisture and soil conditions. Understory placement and character should balance human use and aesthetics with habitat requirements.

Herbs

Interim seeding with native meadow mix may accompany clearing of invasives and reclamation of bare ground or unused pavement areas.

REMOVING PLANTS

Flowering blireiana plum trees, the majority identified as topped and in mediocre condition, should be monitored and removed as further decline or hazard dictates. For the sake of aesthetic quality and historic character, this row should be cut down and replanted simultaneously, not piecemeal as individual trees fail.

Inventory results indicate that 77% of trees possess defects and 21% have been topped. Detailed hazard evaluation should be undertaken, and may well result in additional removals. Since general tree health is quite high (80% = good), removals anticipated due to decline should be few.

WEEDING AND INVASIVE CONTROL

Trees

Remove any Lombardy poplar trees and suckers, also Norway maple trees after confirming their correct species identity (vs. native bigleaf maple).

Shrubs

Spread of blackberry thickets should be controlled near-term by periodic mowing, if not completely eradicated. Since development will result in new grading disturbance, full blackberry removal is perhaps best integrated with implementation of site improvements. Few other woody invasives are present.

Herbs

Rough weedy areas ultimately should be converted to native meadow or shrubbery, but eradication of herbaceous weeds at present is impractical. Mow as flower heads appear, to limit viable seed production, monitoring annually for presence of noxious weeds. If found, these will require immediate and complete removal.

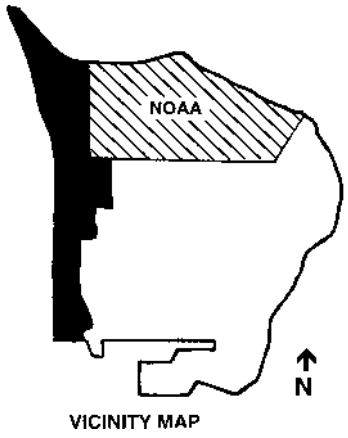
5.4.2 Aircraft Industrial Management Area

Treatment types in this area focus on reclaiming neglected plant beds and slopes, maintaining existing turf and shrubs, adding trees to complement but not obscure buildings and the view axis, and adding plants to humanize scale and reinstate historic planting plans.

Management and Maintenance Annual Calendar
Historic District Zone – Aircraft Industrial Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management And Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒					▒	▒		
Pruning	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Removing Plants	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Amending Soils			▒	▒	▒	▒	▒	▒	▒			
Taking Care of Turf	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Watering							▒	•	•	•	▒	
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs					▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Beds, trees and areas cleared of invasives must be well mulched to suppress unwanted plants, improve tilth and conserve soil moisture.

PLANTING

This MA is as opposite a "natural area" as exists at Sand Point, and while natives can be incorporated into new plantings, a naturalistic style is largely inappropriate. Likewise, contemporary ornamental embellishment is to be avoided, relying instead on documented historic planting precedent.

Trees

Identify possible gaps in young red maples planted along 63rd Avenue NE and infill with trees of matching cultivar. Inventory results indicate that these trees are quite small (one inch trunk diameter), and probably not well-established. Although as a group given a "good" health rating, their low average "live crown ratio" (around 60%) suggests serious transplant shock. Red maples are native to moist woodland habitats in the Eastern and Central U.S. Street planting of this species without attentive establishment watering and mulching is thus inherently stressful, particularly when few roots have yet developed.

Should significant numbers of the red maples along 63rd NE exhibit further dieback – or death – appropriate recourse would be to replace them with a uniform planting of smaller, narrower, tougher trees, as recommended in the 1997 Design Guidelines. Although narrow forms of red maple exist, the species already is heavily used in this half of the Park, making other species preferable for purposes of diversity as well. Possible choices might include Sentry ginkgo, Tschonoskii crabapple or fastigiate Amanogawa cherry. The designated vista north toward the Lake should be framed, not obscured, by the corridor's street trees.

Additional fruiting apple trees should be planted in the general vicinity of existing heritage trees west of Building 5. Selections should meet modern standards for quality and disease resistance, with heirloom status a secondary consideration. Other opportunities for tree planting include the currently open slope between Buildings 5 and 67, where orchard, or groves of shore pine, Garry oak or Madrona might prosper in meadow.

Small areas between or within parking lots and along drives present other possibilities for softening plantings that do not obscure the building facades. Simple palettes, moderate stature, and generally formal spacing are recommended. Water-demanding species should be excluded.

Shrubs

Shrub additions include two potential types: historic landscape restoration plantings where original plans are to be reinstated, and reclamation plantings for areas cleared of weeds or blackberry. The former should be undertaken on a project basis in association with individual buildings, and carefully reviewed for authenticity of style and palette. The latter should immediately follow invasive plant eradication, favoring historic vestige shrub species and tough evergreen natives like mahonia, or sword fern and salal where sufficiently shady. For steep outlying slopes, thicket-forming natives like rose, redtwig and snowberry may prove useful.

Herbs

Few herbaceous plantings are envisioned for this area, with the possible exception of seasonal color immediately adjacent to major building entries to humanize their appearance without indulging in excessive "beautification" inconsistent with the area's industrial character.

PRUNING

Radically prune extremely overgrown ornamental shrubs in beds atop railroad siding retaining wall, to restore their normal landscape size. Also renovate shrubs remaining in historic foundation beds along 63rd Avenue NE, unless species characteristics prevent (juniper, false cypress). Initiate maintenance pruning on an ongoing, three year cycle.

Tree pruning should be based on further evaluation of the 47% of MA trees inventoried which exhibit structural defects, past topping, or both. Given that 67% of trees possess potential targets, hazard abatement pruning is an important priority. Fortunately, since many of these trees are still relatively young, corrective and training pruning may still be feasible, with long-term benefits far outweighing this near-term investment.

REMOVING PLANTS

Thin the juvenile alder stand on slope behind Building 5 to a variable spacing of 6-15 ft. apart. Re-thin as needed. Remove overgrown foundation trees and shrubs that cannot be either renovated or appropriately converted to tree form (arborized). Examine recent plantings for historically-inappropriate plant selections, transplanting these elsewhere outside the Historic District while still young.

AMENDING SOILS

If paving is removed and areas planted, advance soil conditioning will be crucial for plant establishment, even survival. Elsewhere, site conditions may reveal areas of fill, subsoil or industrial debris. Obviously, such areas will require thorough amendment before attempting planting. Mulch will provide supplementary conditioning over the longer term.

TAKING CARE OF TURF

No top quality turf exists in this MA, but some moderate, and considerable rough turf exist and must be maintained to DPR standards. Conversion of some lawn to either meadow or low shrubbery is recommended, precluding the front of historic structures where lawn was the traditional landscape treatment.

WATERING

Water turf and ornamentals according to need, conserving water wherever possible without compromising plant health. Few remaining MA shrubs require more than minimal irrigation.

WEEDING AND INVASIVE CONTROL

Trees

Remove Lombardy poplars, holly and English hawthorn from zone. These species can either spread or reseed into nearby natural areas.

Shrubs

Blackberry eradication should be undertaken at the railroad siding retaining wall, as a high priority. Other large patches further north also need to be eliminated.

Herbs

Rough weedy areas ultimately should be converted to native meadow or shrubbery. In the interim, mow as flower heads appear, to limit viable seed production, and monitor annually for noxious weeds. If found, these require immediate and complete removal.

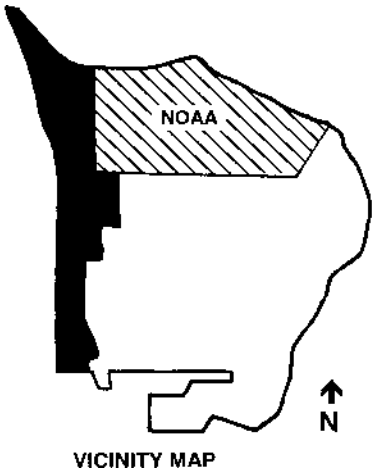
5.4.3 Historic District Core Management Area

Treatments for this area include tree hazard abatement, tree and shrub pruning, turf care, special maintenance and restoration of historic landscape features, and invasive plant removal.

Management and Maintenance Annual Calendar
Historic District Zone – Historic District Core Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	▢
Mulching	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Planting												
Trees			▢	▢	▢					▢	▢	▢
Shrubs			▢	▢	▢	▢				▢	▢	▢
Herbs				▢	▢	▢			▢	▢		
Pruning	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Removing Plants	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Amending Soils				▢	▢	▢	▢	▢	▢			
Taking Care of Turf	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Watering							▢	•	•	•	•	▢
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs						▢	▢	▢	▢			
Herbs						▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Planting beds, trees and areas cleared of invasives must be well mulched to help suppress weeds, improve tilth and conserve soil moisture. Annual replenishment is especially important in this area, where the highest caliber of landscape care is both expected and appropriate. Wood chip mulch is appropriate for tree rings, a finer organic mulch for primary planting beds.

PLANTING

New plantings in this area need to conform to both the Design Guidelines Manual and the Sand Point HPRP Plan, whether a proposed installation is major or incidental. SHPO Level C Review (consultation) will be required for replanting involving contributing historic landscape features, which are identified by list, map and photos in Appendix. Sand Point Historic Preservation Coordinator review may not be required in all other cases, but individuals selecting and arranging plants should be thoroughly familiar with – and respectful of - available historic documentation and plant lists (see Appendix). Because this area constitutes the heart of the historic district, plant additions can strengthen traditional character, or if inappropriately matched to this context, undermine it. Significant planting need exists, for both canopy and understory.

Trees

The Historic District tree inventory revealed a significant proportion of trees with structural, siting or disease problems: 72% with defects, 25% topped, 65% with targets, 22% in fair/poor health. Undesirable species - those prone to disease, pest, structural weakness or invasiveness - make up one quarter of the total MA trees, and nearly half that many more pose potential hazards. The net effect of mitigating these problems will be extensive planting site creation over time.

A well-planned replacement program should begin immediately, in coordination with carefully-sequenced removals. Specific priorities should be established jointly by professionals knowledgeable in tree hazard, tree selection, landscape design, and historic preservation, using inventory findings as a springboard. Piecemeal tree planting should be completely curtailed until such comprehensive groundwork is laid.

Obvious candidates for replacement are damaged Deodar cedars and diseased hawthorns, as well as invasive species like hollies and the many conifers growing tight against building walls. Hazardous trees and high-value landscape elements should be accorded top priority. In the latter case, of identified “contributing landscape features,” replacement in kind of removed trees is mandated - or if cultural or life safety prohibitions exist, with as similar a tree as possible.

Although emphasis clearly needs to lie on reinstating character-defining historic tree plantings, additional sites should be identified and filled over time to increase net canopy. Such discretionary plantings must be reviewed for appropriateness of both species and location in relation to overall historic landscape character. Tree selections should reflect taxa historically utilized at Sand Point, per Appendix list; related or improved varieties may be incorporated also. Tree planting should proceed in an orderly manner, according to specific strategies building on these vegetation management guidelines.

In the interest of long-term success, a discretionary tree replacement plan should be developed through collaborative effort amongst a professional arborist, a landscape designer and Park management, with Historic Preservation Coordinator, DPR landscape architect and urban forester and community review. Once in place, this plan will provide context and guidance for special planting opportunities as they inevitably arise, safeguarding quality and longevity of the canopy so key to this MA's character.

Shrubs

The existing understory badly needs renovation and expansion, to bring back its lost historic character. Some let-go plantings can be rejuvenated through pruning and infill with suitable period plant material, referencing archival plans wherever possible. Selected native species may be used ornamentally; while certain traditional taxa may fail to meet modern standards for sustainability and be eliminated. Priority should be given to restoration planting in most highly-visible areas.

The former rose garden south of Building 26S was identified as a "contributing landscape feature" and should be recreated using original plant varieties tempered with considerations for ease of upkeep. This project might appeal to local rosarians as a volunteer undertaking. All recently planted beds need to be evaluated for fidelity to historic design principles and plant palette; inconsistent material should be transplanted elsewhere and plantings modified to achieve more appropriate character.

Herbs

Major building entries may be planted with seasonal color as resources allow, remembering that mixed shrub plantings, not annual bedding-out, was the primary understory landscape treatment of Sand Point's military period.

PRUNING

Significant deferred pruning needs to be taken care of, for size control and invigoration of shrubs, and to improve both safety and appearance of trees. Past plant neglect and maltreatment have created a daunting burden of pruning and other corrective actions. Shrub pruning can be undertaken by qualified gardeners as part of routine grounds maintenance, or in conjunction with restoration projects. Ultimately,

replacement trees and shrubs will require minimal routine pruning if they are carefully selected and attentively established.

Tree work will mostly require services of certified arborists, with scope of work and priorities clearly defined. The 2001 inventory serves as an initial screen for hazard potential and other problems which pruning can help address. Because the area's trees grow where multiple targets inherently exist, hazard mitigation pruning represents a crucial under-addressed need.

Removing Plants

Trees

Hazard and secondarily, disease- and location-related removals need to be carefully planned and phased. Tree removals should be initiated quickly, for reasons of public safety and historic resource stewardship. The tree inventory represents a preliminary screen and starting point for detailed removal and replacement planning. Grouped removals are recommended, but their exact size and sequence remains to be determined in concert with replantings.

Shrubs

Some vestige shrubs have become overgrown, or declined without hope of restoration. These should be identified by a skilled gardener with species-specific knowledge, removed, and in most cases replaced with equivalent material.

Amending Soils

Soils in this MA have become compacted under years of foot traffic. Organic matter has received little or no replenishment over the years since planting occurred. As part of routine maintenance, mulching, aeration and fertilization all will help improve soil quality and thereby, plant vigor. Soil amending should be included as a key component in all landscape renovation projects.

Taking Care of Turf

This area is defined in large part by generous lawns with trees. Prime location and heavy use dictate premium turf care for at least the northerly portion of the area. Utility work has damaged grade, lawn and irrigation system; all conspire against high quality turf and need to be addressed. Long-term, most lawn areas not reclaimed to shrub plantings will need renovation.

Watering

Historic plantings were not designed with regard to minimizing or eliminating irrigation; most plants which remain have self-selected for low water need. Tailor irrigation to demand, whether manually or automatically by computer analysis. Emphasize xeric replacement planting, within the parameters of traditional palette. Irrigate turf according to location and quality to be maintained.

WEEDING AND INVASIVE CONTROL

Trees

Isolated Norway maple, horse chestnut, Lombardy poplar and London plane, and rows of potentially self-seeding hawthorn and holly are present in this area. All of these should be removed from the Park, to reduce natural area degradation by their progeny.

Shrubs

Few invasive shrubs exist in this MA, but scattered blackberry and reproducing cotoneaster should be eliminated.

Herbs

Significant amounts of morning glory (bindweed) encroach in ornamental beds, particularly those recently planted near Buildings 26N and 26S. Although challenging to eradicate, intensive effort can greatly reduce maintenance and improve appearance longer term. Additional weeds also infest area plantings; thorough weeding combined with religiously-maintained mulches should help provide control.

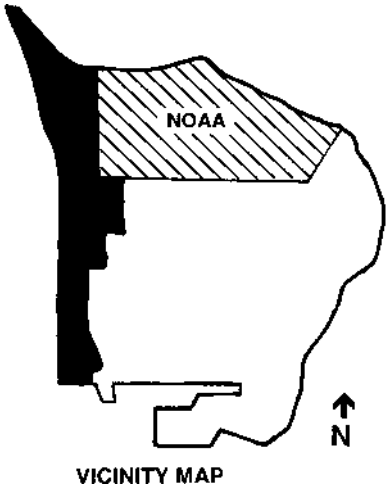
5.4.4 Officer's Row Management Area

Treatments focus on invasives elimination, turf and tree care, and historic landscape preservation and renovation through planning, removal, pruning and replanting activities.

Management and Maintenance Annual Calendar
Historic District Zone – Officer's Row Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	•	•	•	▒	▒	▒	▒	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Planting																		
Trees			▒	▒	▒	▒										▒	▒	▒	▒	▒	▒	▒
Shrubs			▒	▒	▒	▒	▒	▒								▒	▒	▒	▒	▒	▒	▒
Herbs					▒	▒	▒	▒							▒	▒	▒	▒				
Pruning	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Removing Plants	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Amending Soils					▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒							
Taking Care of Turf	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Watering											▒	•	•	•	•	▒						
Weeding and Invasive Control																						
Trees										▒	▒	▒	▒	▒	▒							
Shrubs							▒	▒	▒	▒	▒	▒	▒	▒	▒							
Herbs							▒	▒	▒	▒	▒	▒	▒									

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Beds, trees and areas cleared of invasives must be well-mulched to suppress unwanted plants, improve tilth and conserve soil moisture.

PLANTING

Trees

After confirming species identity, replace Norway maples with non-aggressive alternatives, like hedge or sugar maple. Because of high target potential, bigleaf maple is best avoided. Additional trees throughout the area should be replaced through time, consistent with historic planting plans and precedent. Invasive and problem species removals will yield numerous planting sites over time. New trees should match or exceed numbers removed, with their exact siting to balance historic fidelity with current vegetation composition.

Fewer natives are found in this area than in the adjacent woodland zone; more could be introduced if similar in character to non-native species being removed. For example, a Douglas fir might replace an Atlas cedar, a Western red cedar a Lawson cypress, or a mountain hemlock a Sawara cypress. In peripheral areas adjacent to woodlands, native flowering species could replace declining ornamental plum, cherry, dogwood and hawthorn; Western serviceberry, Douglas hawthorn, and Eddie's White Wonder hybrid dogwood are possible useful taxa. Because Pacific dogwood is plagued by introduced disease, it should be avoided.

Shrubs

Shrub planting is much needed to reinstate the historic foundation landscaping character, an important feature mandated for preservation. Plant selection and placement should follow careful study of original planting plans, with the utmost attempt at fidelity. Palette adjustments to eliminate invasive or disease-prone taxa may be necessary. As a "contributing feature" front bed alterations must receive appropriate level Historic Preservation Coordinator review.

Herbs

Temporary seasonal color plantings may be integrated near building entries, encouraging resident participation. Likewise, the small vegetable garden in rear side yard of Building 332 may be retained and replanted annually; while not historically-appropriate its location is well-screened from streetside view, it fulfills an important programmatic function, and by its nature it is a temporary installation which could be returned readily to lawn.

PRUNING

Many existing shrubs badly need renovation pruning by skilled gardeners, to restore their intended appearance and scale without destroying their natural form.

Over-large plants should be radically renovated, a process to be coupled with extra fertilization, mulching and watering. Because most of these are original plantings, pruning is the treatment much preferred over replacement.

Tree pruning should be performed by a certified arborist according to ranked priority; the 2001 inventory noted at least half a dozen trees that merit hazard assessment, and potentially will require corrective pruning. Trees identified for elimination because they belong to problem species should receive pruning only to keep them safe during the interim, which may be either a brief or a protracted period depending on a tree's contribution to the landscape and the severity of its deficiencies.

REMOVING PLANTS

Trees

Given that three-quarters of trees inventoried in this MA were identified as having structural defects and target potential, and close to 20% are topped, evaluation by a certified arborist for priority removals should be completed promptly. Hazard identification must be paired with timely action, whereas other problems may allow more flexible timing for removal. For example, an atlas cedar - while not a desirable species for replanting – might safely remain in place for thirty years with monitoring.

Shrubs

For the most part, overgrown ornamentals can be reduced to appropriate scale through renovation pruning. An experienced professional gardener should evaluate remnant historic shrubs and direct the selective removal of those that cannot be reclaimed. Hybrid roses also should be evaluated for current condition and disease resistance, and retained only if vigorous and problem-free. Alternate varieties and locations may be indicated, short of total elimination.

AMENDING SOILS

Any foundation bed renovation work should be accompanied by soil reconditioning. In many beds soil appears bare, compacted and congested with roots. Hand methods must be used where historically-planted plants are to remain in place.

TAKING CARE OF TURF

Lawn needs to be maintained in good condition, particularly along 62nd Avenue NE where it contributes to the traditional character of this identified "contributing landscape feature." Lower lawns require a lower standard of care, and where little used and too shaded to thrive, might be evaluated for replacement with noninvasive, evergreen groundcovers.

WATERING

Front lawns are important to Officer's Row both aesthetically and from a residents' use standpoint**;** furnish adequate summer irrigation. Likewise, historic foundation plantings and seasonal color additions will require watering for optimal health and

appearance. Lower visibility landscape beds to rear should emphasize low water-demand species, to the extent historic plans can accommodate such palette adjustments.

WEEDING AND INVASIVE CONTROL

Trees

About twenty trees of invasive species need to be removed from this MA. Fig trees behind Buildings 330 and 331 have self-sown into an impassible thicket: remove them all. Any existing Norway maples (confirming species first), plus holly, Portugal laurel, hawthorn, European white birch and a golden chain tree should be taken out as well. Seedlings should be sought out and destroyed annually. Because these species reseed and colonize readily into the wild, their removal helps reduce degradation of nearby native woodlands. For most, non-invasive substitute taxa are available for purposes of replanting.

Shrubs

Self-sown cotoneaster and viburnum plants are evident in beds surrounding the area's buildings and naturalized elsewhere in the Park. Although not yet a major invasives problem, these species should be removed from the landscape despite their historic usage. Infertile alternate selections can replace them. The usual complement of invasive blackberry, English ivy and clematis encroaches significantly along the rear (east) fenceline bordering the North Woodland, as well as infesting certain of the ornamental beds. Along the woodland edge, trim these vines away from ornamental landscape areas regularly, and target actual eradication at the roots in the woods. Where present within the MA, control spread and ultimately eradicate in concert with landscape restoration projects. Eradication without replanting could lead to erosion or re-infestation with other opportunistic species.

Herbs

Morning glory in beds should be eliminated through persistent effort, perhaps by volunteer adoption of bed areas. Other incidental herbaceous weeds can be removed largely through improved cultural practices like mulching.

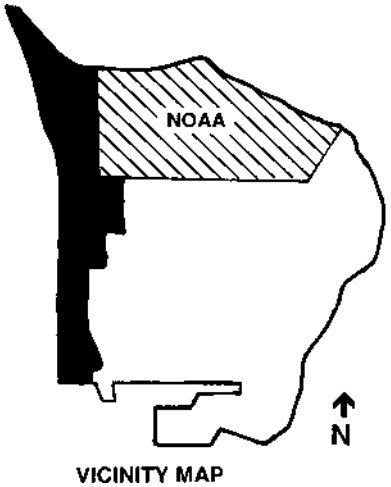
5.4.5 Golf Greensward Management Area

Treatment efforts in this area are directed toward maintaining lawn and tree canopy, dealing with tree hazard reduction and stand replenishment, reinforcing native plant periphery adjacent to N.E. 65th, and eliminating invasive trees and woody plants**.**

Management and Maintenance Annual Calendar
Historic District Zone – Golf Greensward Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	•	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Planting												
Trees		▒	▒	▒						▒	▒	▒
Shrubs		▒	▒	▒						▒	▒	▒
Pruning	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Removing Plants	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Taking Care of Turf	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Watering							▒	•	•	•		
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Trees and replanted areas cleared of invasives must be well-mulched to suppress unwanted plants, improve tilth and conserve soil moisture.

PLANTING

This whole management area constitutes an identified "contributing historic landscape feature." Certain changes proposed by interested citizens (converting turf to meadow, eliminating tall native conifers) are inconsistent with the historic character. Proposed plantings and alterations must receive appropriate level Historic Preservation review before implementation, the exception being in place, in kind replacements.

Trees

To avoid creating even-age stands, tree planting in this MA should be undertaken over time, more or less continuously. Planting is best accomplished incrementally but not randomly: it should adhere to clear, preordained principles consistent with both sound urban forestry and landscape preservation practice. To perpetuate the area's character, new generations of trees should be planted in anticipation of losses and in coordination with necessary removals. The pattern of open area and canopy may shift over time, but its essential configuration and balance should remain intact.

Of 27 sizable Douglas firs and cedars present in this MA, two thirds were found to have structural defects or evidence of past topping: either could lead to the premature demise of these normally long-lived trees, and accelerate the need to provide in-kind replacements. Native trees should be added along the ridge and slope abutting NE 65th Street; madrones are currently self-seeding in this area and should be both encouraged and supplemented.

Norway maples, including a topped row of twelve along the west edge of the MA, should be replaced with other, noninvasive maple varieties having similar form and ultimate stature. Sugar maple or *Acer freemanii* hybrids may prove a good alternative, with the bonus of excellent fall color for this highly-visible location.

Shrubs

Native understory enhancements should be added in the grove-like margin at the MA's southeast edge. Ocean spray, hazel, snowberry and salal are particularly appropriate for madrona / Douglas fir under-planting. No replacement ornamental shrubs should be added in the vicinity of Building 15 at the Sand Point Way corner. This immediate area will likely undergo major change as a new Park entry is developed.

Pruning

Tree pruning needs to be evaluated in detail by a certified arborist and undertaken according to relative urgency, particularly hazard potential. Because of their size and particular defects, for some trees removal may be the only prudent option. Whenever possible, pruning is the preferred alternative to avoid wholesale canopy destruction – even if only to defer the inevitable. The Historic District tree inventory identified both problems and targets for almost all perimeter trees in this MA, indicating that pruning (and removal) requirements may prove quite extensive.

Shrub pruning for residual ornamentals in the southwest portion of the area should be limited to dead, damaged and diseased wood removal until the ultimate disposition of these plantings is ascertained. If retained long-term, major renovation pruning should be undertaken.

Removing Plants

Numerous MA trees need further evaluation for hazard potential, following a preliminary inventory screening. To protect public health and safety, some tree removals are likely to result. Otherwise, no non-invasive plants need to be removed, except eventually as part of Park entry modifications. Ornamental spirea and groundcover roses near NE 65th Street ultimately should be removed, for replacement with ornamental native species of the same genera.

Taking Care of Turf

Mown turf constitutes an essential element of this landscape's character, and also provides park users a convenient and attractive place to sit, picnic and play. Golf Greensward turf must therefore be maintained to a standard consistent with its frequent use and visibility.

Weeding and Invasive Control

Trees

Norway maples possess major invasive potential, and should be eliminated from this MA - particularly so because of proximity to residual native woodlands. Many of these 21 trees are poor topped specimens in any case, so high quality trees will not be lost. Several hollies, European white birches, Lombardy poplars, a golden chain and a hawthorn also need to be removed, for an ultimate total of about 45 invasive trees.

Shrubs

Isolated shrub-size holly, cotoneaster and Portuguese laurel should be removed, as should privet if evidence of reseeding is observed in the vicinity. Ivy and blackberry are present in limited patches, and need to be eradicated before they present a major threat to area trees or understory. Recent invasive control efforts should be continued to consolidate gains already made.

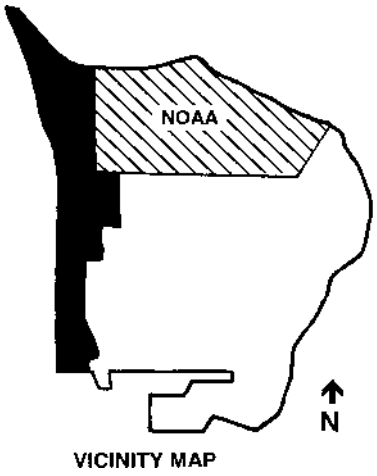
5.4.6 Sand Point Way Management Area

Treatments in this area focus on restoring and possibly extending the historic tree row, developing more appropriate underplantings, mowing, tree pruning and hazard abatement and invasive plant removal.

Management and Maintenance Annual Calendar
Historic District Zone –Sand Point Way Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	•	•	▢	▢	▢	▢	▢	▢
Mulching	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Planting																			
Trees			▢	▢	▢	▢										▢	▢	▢	▢
Shrubs			▢	▢	▢	▢										▢	▢	▢	▢
Herbs					▢	▢	▢	▢						▢	▢	▢	▢		
Pruning	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Removing Plants	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Amending Soils					▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢				
Taking Care of Turf	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Watering										▢	•	•	•	•	▢				
Weeding and Invasive Control																			
Trees							▢	▢	▢	▢	▢	▢	▢	▢					
Shrubs					▢	▢	▢	▢	▢	▢	▢	▢	▢						
Herbs					▢	▢	▢	▢	▢	▢	▢								

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

Trees and new understory plantings must be well-mulched to discourage grass and weed growth, improve root environment, and conserve soil moisture.

PLANTING

Trees

Sand Point Way requires a major replanting initiative, due to factors of structural defect (153 trees, 69% of MA population), topping (44%), problem species (42%), and potential targets for virtually all existing trees. While individual trees will be removed or die as time goes by, replacements must take their place to perpetuate the overall planting. Because the entire row is an identified "historic landscape feature," trees must reflect the original character as closely as possible; however, errors of past species selection, spacing and management must be corrected.

New trees should be chosen to balance species diversity with visual continuity, and to accurately reflect the existing ratio among conifer, shade and ornamental varieties and among diverse form and stature. Whether undertaken incrementally or as a single project, replanting must proceed by approved plan, subject to appropriate level historic preservation review (in this case, directly by consultation with the SHPO – State Historic Preservation Officer).

Planning should be undertaken as a top priority, since replanting must accompany all removals within a contributing landscape feature, and certain removals appear urgently needed. As for other Historic District MA's, planning must include parties qualified to address forestry, landscape design, historic preservation, Park management and community concerns.

The existing Sand Point Way row includes over 200 trees, representing 18 taxa, but dominated by very few (6 species = 85% of trees). Several of the current species should be excluded from future use: suckering, invasive Lombardy poplar, invasive Norway maple, disease-prone crabapple and English hawthorn, insect prone, self-seeding European white birch, much overplanted red maple. Existing species appropriate to replicate in a new tree row include Deodar cedar, Douglas fir, Scot's pine, Chinese elm, and possibly bigleaf maple. In addition, the new palette should include at least one disease-resistant flowering tree, an alternate maple, and a tall, narrow deciduous tree like fastigiate English oak, beech or ginkgo.

New plantings through time should repair gaps and correct awkward offsets in the lengthy, discontinuous row, and introduce culturally-appropriate spacings of 15 – 40 ft., depending on species. These changes represent a necessary departure from

historic precedent in favor of tree health and longevity. The segment north of the NOAA access road particularly needs design attention; currently the row peters out except for occasional native trees. Whether a formal tree row should continue along Sand Point Way to the Park's northernmost boundary is a question not answered by history so much as by aesthetics and landscape function. In sum, the evolving Sand Point tree row should both honor and improve upon its history.

Shrubs

Existing pyracantha underplantings toward the south end of the park should not be replanted. Tree replacement creates an opportunity for portions, if not all, of an historic rhododendron planting plan to be implemented at the same time, allowing trees and shrubs to establish together. In many places grades are too steep and /or planting areas too narrow to maintain turf. Such areas would both look better and function better if underplanted with moderate height, ornamental shrubbery and groundcovers. Such plantings should be extremely simple, using rugged but attractive species. Northwest natives could be incorporated to advantage.

PRUNING

As a high priority, existing trees should be evaluated individually for pruning needs, to improve condition and reduce hazard potential wherever possible. For many trees, removal and replacement – not pruning – will be the only viable option. Very few shrubs exist along Sand Point Way, and fewer still are slated to remain. No shrub pruning should be required, until such time as recommended understory additions have established and matured.

REMOVING PLANTS

Trees with significant structural problems should be removed proactively at the recommendation of a certified arborist, either en masse or in defined groups. Inventory suggests that about 90 trees need further evaluation for hazard, among which several may require expedited removal. Scattered removals on an emergency basis should be avoided, both because of inefficiencies and because cumulative attrition without prompt replacement could easily follow.

Diseased crabapples (18 trees), while not especially hazardous, are recommended for eventual removal. Individual "oddball" trees and shrubs likewise eventually should be removed, as part of overall renovation. Where (if) high quality trees remain, removal of crowded, intervening trees should be undertaken to improve spacing. Until specific hazard and problem tree removals are identified, exact locations for such thinning cannot be provided.

AMENDING SOILS

As part of tree replacement, soil in planting areas must be thoroughly loosened and amended wherever unfavorable ground conditions are encountered. The opportunity to create an optimal growth environment should be exploited fully, since Sand Point Way's planting beds are modest at best. Any existing turf should be stripped, not incorporated, and reestablished later where design dictates.

TAKING CARE OF TURF

At present, turf underplanting trees is a major vegetation component. In the future, its use should be greatly curtailed, in tandem with tree replacement. Grass negatively affects tree growth. It requires continual maintenance, even when provided minimal levels of care. Mowers frequently damage tree trunks, especially in tight areas and eventually, tree canopies and roots push turf into unattractive, weedy decline. In the interim period, provide minimal level turf care. Areas ultimately returned to lawn should be accorded moderate to high quality care, consistent with visibility of location. Regrading to reduce steep slopes should precede lawn replacement wherever feasible.

WATERING

Before selecting trees and underplantings to use for renovation, determine whether or not irrigation will be provided. If rhododendrons are to be incorporated for historical reasons, watering will be a necessity, and water-requiring tree varieties could also be included. Alternatively, the entire row can be designed for xeric conditions, and plants selected accordingly. Current vegetation survives adequately without necessity of irrigation.

WEEDING AND INVASIVE CONTROL

Trees

Non-native poplars constitute a serious invasive plant problem at Sand Point, and should be eliminated, whether individual trees are in good or poor condition. Norway maple, European white birch, and English hawthorn trees also should be taken out through time, because they self-seed in Park natural areas. A total of 70 trees are involved, over 30% of the total population; many gaps in the tree row will result.

Shrubs

Pyracantha occasionally self-seeds into the wild, and therefore should be removed. Its current aesthetic contribution is minimal. Particularly along the northerly street edge, blackberry and Scot's broom should be controlled and eventually eliminated altogether.

Herbs

The north portion of this MA contains extensive areas of weedy grassland, which should be mown prior to seed maturation, to minimize dispersal, until complete landscape redevelopment occurs. Where young native shrubs are establishing in this rough area, extra effort should be accorded to suppress competing weeds.

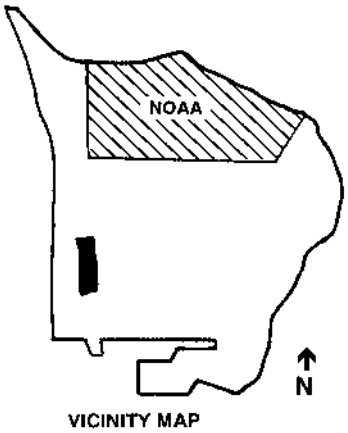
5.5 Sand Point East Housing Zone

Treatments in this zone are directed toward maintaining turf, controlling invasives, interim pruning, removing overgrown and poor condition plants, reclaiming asphalt and encouraging native edge, and establishing planting criteria for future site redevelopment.

Management and Maintenance Annual Calendar
Sand Point East Housing Zone

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Maintaining Meadow								•				
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒	▒	▒	▒				▒	▒	▒
Herbs			▒	▒	▒	▒				▒	▒	
Pruning	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Removing Plants	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Amending Soils			▒	▒	▒	▒	▒	▒	▒	▒		
Taking Care of Turf	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Watering							▒	•	•			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

All new plantings require follow-up care for three years to insure their healthy survival.

MULCHING

All beds and trees should be mulched after weeding per DPR standards, and replenished annually.

MAINTAINING MEADOW

Current turf areas on very steep slopes, and turf below Building 9 near Sports Field Drive should be converted to meadow, and regularly maintained as such.

PLANTING

Future site redevelopment will offer excellent opportunities for plant additions. Most existing plant material is functional but ultimately expendable. Short-term, seasonal color plantings may be integrated near building entries, encouraging resident participation. Major shrub gaps in existing beds may likewise be filled, selecting plant material for close match to Historic District palette and style. Avoid obviously-contemporary design and taxa. Add natives as feasible within primary parameters above. Particularly along south edge to integrate with Forest Remnant Zone margin. Tree planting is otherwise a low priority until a site redevelopment timeline is known; thereafter, additional ornamental and low-maintenance fruit trees are highly recommended where clear of construction.

PRUNING

Prune existing, healthy shrubs and trees to remove dead, damaged and diseased wood. Undertake renovation pruning in high-visibility locations on amenable species, elsewhere optional as time allows. Fertilize heavily-pruned plants. Apple trees growing along Sports Field Drive should receive annual dormant-season pruning to maintain their productivity. Residents and recreational users of the Park may welcome the fruit produced.

REMOVING PLANTS

Identify alternate location for resident vegetable garden, siting to minimize visibility from prime Historic District frontage. Replant area in lawn. Remove remnant shrubs that are either self-sown, in poor condition, or permanently-overgrown. Regarding trees, many hawthorns are extremely diseased and unattractive, and good candidates for removal; however only one third of these have been identified as potentially hazardous, making removal priority relatively low.

The Sawara false cypress row is planted very close to Building 221; all these trees are candidates for removal, should further hazard evaluation or opportunity for landscape renovation dictate. The Lombardy poplar and developing saplings should be removed, the birch and flowering crabapples eventually as well, due to species unsuitability. Refer to Appendix matrix Sand Point East Housing Zone – Individual Tree Management for tree by tree removal and hazard evaluation direction.

TAKING CARE OF TURF

Provide turf maintenance to match level of use and visibility, which varies within Zone from high to very low. Entrance side of Building 224 along 62nd Avenue NE requires highest quality care.

WEEDING AND INVASIVE CONTROL

Portions of the zone contain encroaching blackberries, Lombardy poplar and sprouts in peripheral areas, plus assorted weeds in neglected planting beds. To reclaim landscape from abandoned appearance, undertake weed and particularly invasive species removal as a top priority. Eliminate English laurel, holly, and self-seeding viburnum and cotoneaster plants.

PAVEMENT REMOVAL

Where paved areas are unused and deteriorating, break up and haul away, regrade and plant to meadow and/or habitat shrubbery. This treatment is inappropriate immediately adjacent to 62nd Avenue NE.

5.6 Community Activity Center Zone

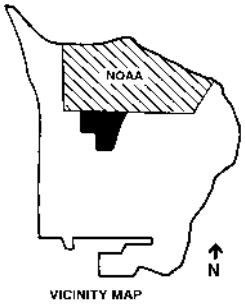
5.6.1 Community Activities Management Area

This MA is a 4-5 acre area surrounding and including the Community Activity Center (Building 406, formerly the Brig). The vegetated grounds consist of mowed lawn and landscape plantings in beds, around the building and along the parking area and NE 74th St. Planning is currently underway to create a Community Garden on four acres directly east of the Community Activity Center building, bordered on the east by an old paved access road that bisects the Zone. The Garden as planned would include a P-Patch, tranquil garden, and children's garden, among numerous features (Magnuson Community Gardens Plan, Aug. 2001). Management of this area in the interim focuses on maintaining existing plantings for health and aesthetics until a cohesive plan for the Community Garden is completed and implemented.

Management and Maintenance Annual Calendar
Community Activity Center Zone – Community Activities Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	•
Mulching	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Planting												
Trees			▢	▢	▢						▢	▢
Shrubs			▢	▢	▢						▢	▢
Herbs					▢	▢	▢		▢	▢	▢	
Pruning	•	•	•	•	▢	▢	▢	•	•	•	•	•
Removing Plants	•	•	•	•	▢	▢	▢	•	•	•	•	•
Amending Soils					▢	▢	▢	▢	▢	▢		
Taking Care of Turf	•	•	•	•	•	•	•	•	•	•	•	•
Watering							▢	•	•			
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs						▢	▢	▢	▢			
Herbs				▢	▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE
This will be required for any woody plants installed.

MULCHING
Mulch tree rings as needed to maintain 2-4" depth. Mulch landscape beds as needed to maintain 1-3" depth depending on plant types.

PLANTING
Plant landscape beds as needed and desired with consideration for changes due to proposed Community Garden development.

PRUNING
Prune landscape plants as needed for health or to remove dead, misshapen, or hazardous limbs.

REMOVING PLANTS
Removals other than invasives are to be performed only in the case of hazard trees, or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed in appropriate Zones (Habitat, Promontory Point) as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

AMENDING SOILS
Soil in planting areas must be thoroughly loosened and amended wherever unfavorable ground conditions are encountered. The opportunity to create an optimal growth environment should be exploited fully, since Sand Point Way's planting beds are modest at best. Any existing turf should be stripped, not incorporated, and reestablished later where design dictates.

TAKING CARE OF TURF
Mown turf provides an important function as an informal gathering place around the Community Activity Center, and must therefore be maintained to a standard consistent with this use.

WATERING
Regular watering during the driest part of the growing season is necessary for landscape beds.

WEEDING AND INVASIVE CONTROL
Keep tree ring areas clear of herbaceous weeds during the growing season (frequency as needed). Weed landscape beds as needed.

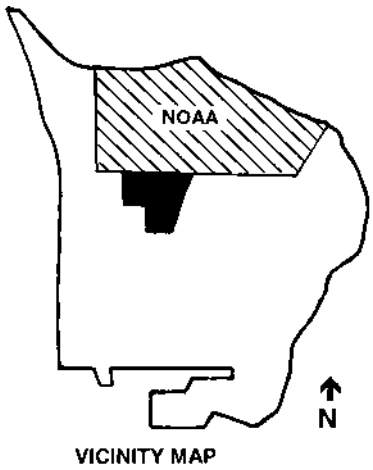
5.6.2 Junior League Playground Management Area

The Junior League Playground lies in the south of the Zone and includes an area of roughly just under an acre that encompasses the playground and picnic shelters, mowed lawn areas, and groups of specimen trees. Management of this MA should focus on maintaining an area that is for young children and parents actively playing and picnicking. Main actions include turf care, mulching of trees and landscape beds, and pruning and hazard tree removal.

Management and Maintenance Annual Calendar
Community Activity Center Zone – Junior League Playground Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Mulching	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
Planting												
Trees		▒	▒	▒						▒	▒	▒
Pruning	•	•	•	•	▒	▒	▒	▒	▒	•	•	•
Removing Plants	•	•	•	•	▒	▒	▒	▒	▒	•	•	•
Taking Care of Turf	•	•	•	•	•	•	•	•	•	•	•	•
Watering							▒	•	•			
Weeding and Invasive Control												
Herbs						▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE
This will be required for any woody plants installed.

MULCHING
Mulch tree rings as needed to maintain 2-4" depth.

PLANTING
Plant trees to replace diseased or dying as needed.

PRUNING
Prune landscape plants for health as needed.

REMOVING PLANTS
Removals other than invasives are to be performed only in the case of hazard trees, or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed in appropriate Zones as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

TAKING CARE OF TURF
Mown turf provides an important function as a place for families with children to sit, picnic, and play and must therefore be maintained to a standard consistent with this use in accordance with DPR BMPs for General Lawn Areas.

WATERING
Water turf and ornamentals in planting beds according to need.

WEEDING AND INVASIVE CONTROL
Keep tree ring clear of herbaceous weeds during the growing season (frequency as needed).

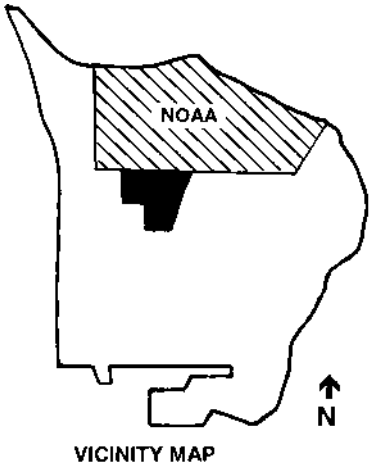
5.6.3 Tree/Shrub Savannah Management Area

This approximately 10-acre MA makes up the eastern half of this Zone, and consists of upland meadow with numerous non-native poplars primarily located along the gated road that bisects the MA. This area should be managed for conversion to upland meadow with a cluster of mixed forest/shrub community at the far south end of the Zone. This will connect to and expand an existing patch of upland forest located to the south in the Dog Off Leash Zone. Management actions will include a mowing regimen to maintain the meadow habitat, removal of non-native poplar trees and shrubs, and replacement in adjacent upland forest areas with appropriate native species.

Management and Maintenance Annual Calendar
Community Activity Center Zone – Tree/Shrub Savannah Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Maintaining Meadow									•			
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Removing Plants	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native trees and shrubs.

MAINTAINING MEADOW

Upland meadows are to be actively managed to prevent further colonization by native woody plants and invasion by non-native species. Maintenance actions will consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed. The abandoned road and parking lot in this MA are unused and could be removed and restored to upland meadow.

PLANTING

Replacement for removed non-native poplars will be required. Planting of trees and shrubs should be done as directed in Sections 6.11 and 6.5. Replacement planting should be done at a location along an edge of adjacent or nearby upland forest to the south or at the north end of the Habitat Zone. Species composition of replacement plant community will depend on specific location of planting area, but should be comprised of a combination of mixed evergreen and deciduous trees and shrubs.

REMOVING PLANTS

Removals other than invasive species are to be performed only in the case of hazard trees or diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

WEEDING AND INVASIVE CONTROL

Non-native poplars are the main invasive tree species encountered in this area. The most common invasive shrubs are Himalayan blackberry, Scot's broom, and non-native hawthorn. Problematic herbaceous species that may occur include Canada thistle. Woody debris resulting from removal of invasive trees or shrubs that do not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat features such as brush piles, LWD, snags, or stumps. Wood from suckering species such as Lombardy and white poplar, that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

5.7 Sportsfield Zone

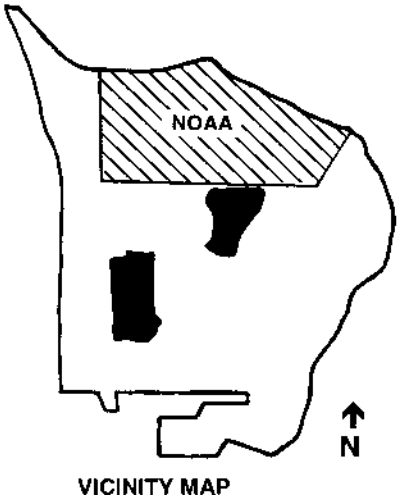
5.7.1 Turf Management Area

The 24 acres of athletic field turf comprise the majority of this Zone. Both Magnuson Sportsfields and Sand Point Sportsfields are included in this MA. Maintenance and management actions consist entirely of turf care, as described in the Maintenance and Management Section 6.8.

Management and Maintenance Annual Calendar
Sportsfield Zone – Turf Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
Taking Care of Turf	• •	• •	• •	• •	• •	• •	• •	• •	• •	• •	• •	• •
Watering							▢ •	• •	• ▢			

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

TAKING CARE OF TURF

Sportsfield turf should be taken care of in accordance with DPR BMPs for Soil Based Athletic Fields (Section 6.8).

WATERING

Irrigate fields in accordance with DPR BMPs for Soil Based Athletic Fields (Section 6.8).

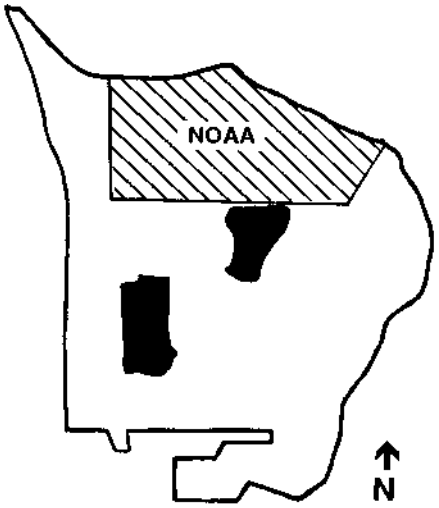
5.7.2 Upland Meadow Management Area

The small patch of upland meadow in this Zone is located in the northeast corner of the Sand Point sportsfields, south of the Dog Off Leash Zone. This area is to be managed as meadow habitat to prevent colonization by both non-native and native woody species. This management will consist of a fall mowing regimen, and might possibly also include regular hand weeding as necessary. Mowing is to be done late enough in the growing season (September) to accommodate bird nesting season as well as seed head production for wildlife forage.

Management and Maintenance Annual Calendar
Sportsfield Zone – Upland Meadow Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
Maintaining Meadow									•			
Weeding and Invasive Control												
Trees							▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

MAINTAINING MEADOW

Upland meadows are to be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. This will consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

WEEDING AND INVASIVE CONTROL

Non-native poplars are the main invasive tree species encountered in meadows. The most common invasive shrubs are Himalayan blackberry and Scot's broom. Non-native hawthorn is another commonly occurring non-native invasive species in meadow areas. Problematic herbaceous species that may occur include Canada thistle. All woody species (native or non-native) are undesirable to maintain upland meadows an early successional stage, and weedy herbaceous species should also be controlled.

5.8 Habitat Zone

5.8.1 Non-native Shrub Management Area

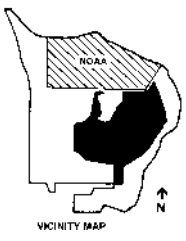
This MA is found scattered throughout the Habitat Zone and consists primarily of either Himalayan blackberry or Scot's broom in dense monotypic stands. The largest patches occur in the northern portion of the Zone, both north and south of Kite Hill, the largest being upwards of 6 acres in size. Smaller patches between 1/10 acre and ½ acre in size are more typical. Thickets of non-natives should be cleared by mechanical mowing and then replanted to convert them to native shrub, forest, or limited areas of meadow communities. In addition, the eastern flanks of Kite Hill which are now dominated by Scott's broom and blackberry thicket may provide an excellent opportunity to establish a native oak/meadow savannah in the Park. Gradual removal of Scott's broom and blackberry thicket, and replacement with native Garry oak interspersed with unmowed meadow will provide a new habitat type. A slow-growing, open native canopy will develop, vegetation in the long run requiring far less annual maintenance than the highly invasive blackberry and broom.

Removal of non-natives should occur only when follow-up replanting with native species and 3 yr. establishment care is planned and implemented. Removal of large thickets should be done incrementally (see Section 6.11) to assure that all the habitat niches provided by the thicket are not removed all at once and some remain as habitat for wildlife during habitat transition.

Management and Maintenance Annual Calendar
Habitat Zone – Non-native Shrub Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	•	▒	▒
Establishing Meadow			▒	▒	▒	▒	▒	▒	▒	▒		
Maintaining Meadow									•			
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒	▒	▒				▒	▒	
Amending Soils							▒	▒	▒			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs				▒	▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native shrubs.

ESTABLISHING MEADOW

Some limited meadow areas can be established in cleared thicket areas that are adjacent to existing upland meadows. This will be the most labor-intensive and difficult plant community to establish in these areas due to the level of invasive control that will be needed. For these reasons, and because of the prevalence of meadow habitat in the Park currently, establishing more meadow may not be the most desirable choice for both ecological and economic reasons. Establishment would include removal of the invasives, seeding, weeding, mowing, and possibly soil amending.

MAINTAINING MEADOW

Any newly established meadows created as conversion from non-native shrub thicket must be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. Annual fall mowing will be necessary to adequately control re-sprouting shrubs until meadow is established. After invasive shrub recruitment is controlled, mowing frequency can be decreased to one mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

PLANTING

Planting in non-native shrub areas should proceed after clearing, and any soil amending or sheet mulching has been completed. Thickets of non-natives that are adjacent to existing forest should be converted to a native woody plant community (trees and/or shrubs) rather then meadow, in order to expand the native shrub/forest communities on site. Thickets adjacent to existing upland meadow should be converted to meadow, oak or madrona savannah, or native shrubs. Thickets adjacent to wet meadows should be replaced with native shrubs tolerant of variable moisture regimes. See the Tables in Section 6.11 for information on plant moisture tolerances.

AMENDING SOILS

Soil amending throughout planting area may be necessary or desirable after non-natives have been cleared and prior to planting.

WEEDING AND INVASIVE CONTROL

Non-native shrub thickets consist largely of Himalayan blackberry and Scot's broom. Control and removal strategies for these two species are very similar, as described in Section 6.11.

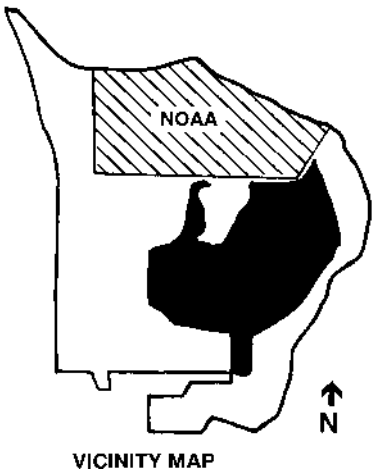
5.8.2 Upland Forest Management Area

The Upland Forest MA covers the portions of the Habitat Zone west of the swim beach parking lot, south of the bunkers south of Kite Hill, and north of the existing tennis courts. A small lobe is present northeast of Building 193, and also due east of Building 193. The Upland Forest MA totals approximately 11 acres in this Zone. Together with the 12 acres of upland forest in the Promontory Point Zone, this represents all of the upland forest present in the Park east of Sportsfield Drive. It is quite fragmented across the landscape in existing conditions. There is significant presence of invasive species in the forested areas and along edges, mostly Himalayan blackberry and some Scott's broom.

Management and Maintenance Annual Calendar
Habitat Zone – Upland Forest Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	•	•	•	▢	▢	▢
Planting												
Trees		▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Shrubs		▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Herbs			▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Pruning	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Removing Plants	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Weeding and Invasive Control												
Trees						▢	▢	▢	▢			
Shrubs					▢	▢	▢	▢	▢			
Herbs				▢	▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

Priorities for management of the Upland Forest MA's should focus on preserving and enhancing those interior areas of woodland where invasives are present as mild infestations, and where complete control and eradication is most easily accomplished. Native forest communities that are mostly intact can withstand overwhelming invasion by non-natives by launching and maintaining an aggressive campaign to limit their spread. Additional high priority sites for invasives control are those that provide prime habitat, or are part of a landscape setting important from a habitat perspective. Finally, high priority should be given areas that already have been the focus of invasive removal and replanting.

Evaluating relative importance in the landscape setting of the Park should include considering connectivity between similar habitats (linking isolated forest fragments across the Park), continuity for wildlife corridors (linking dissimilar habitat types such as the shoreline to the upland forests of Promontory Point), creating or enhancing ecotones (the interface of two different types of habitat), and providing buffers to existing wetlands. Lower priority management efforts (invasives control and replacement with natives) should go toward habitat improvement in severely-infested areas that will require the greatest level of initial effort and follow-up care.

Additional effort can be focused on increasing species diversity within forest stands, creating multiple age class mixed (deciduous and coniferous) forests with diverse canopy structure (canopy, sub-canopy, shrub and herbaceous components), and reducing invasive coverage both within forest patches and around their edges. Where appropriate, native conifers tolerant of shade conditions (red cedar, hemlock rooted on rotted woody debris) should be started in the understory.

3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed plantings.

PLANTING

Planting should only be done with a commitment for 3 year establishment care. Species selection should reflect microclimate conditions at each planting site, but should be Puget lowland native species typical of an upland forest. As noted above, targeting species diversity within each canopy layer is critical for long-term forest succession. See Section 6.11 Tables for recommendations of plant associations.

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall to the forest floor as woody debris. Misshapen or hazardous limbs may not be critical for removal in the interior of woodlands or forests where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety. Where tops of trees have fallen or major branches broken off, the trunk should be left standing intact (where human safety is not an issue) to promote the establishment of snags for habitat niches.

Removing Plants

Removals, other than invasives, are intended to be performed only in the case of hazard trees, or installed plant materials that are diseased and need to be replaced. When possible, removals should be done between August and February to avoid potential disruption to breeding wildlife. Woody debris from plant removals should be left or placed to create complexity for wildlife habitat. Branches, logs, and trunks from woody plants that do not sucker or sprout from cuttings can be gathered into brush piles, placed on the ground as Large Woody Debris (LWD), left upright as snags, or left intact as stumps. Large Woody Debris from suckering/sprouting species like Lombardy and white poplar can be used if the logs are propped off the ground surface until wood is no longer viable (2 years). Poplar logs can be elevated on scrap lumber or other easily-decomposable, non-sprouting wood.

Weeding and Invasive Control

Weedy and invasive species most likely to be problematic in this MA are numerous and include: Himalayan blackberry, English ivy, laurel, clematis, bindweed, hawthorn, non-native poplar, and Scot's broom. Weeding and removal of shrub and herbaceous species should take place during the growing season with as needed frequency but at least monthly in the first year for newly installed plantings.

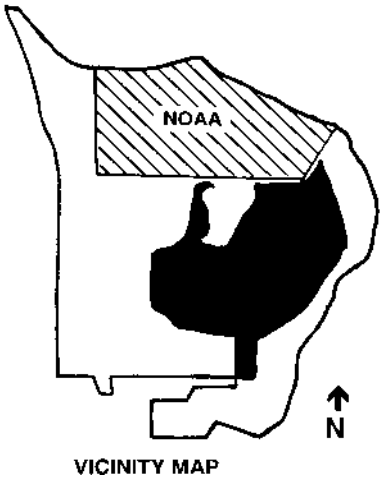
5.8.3 Upland Meadow Management Area

Upland meadows occur scattered in this Zone, freely mixed with wet meadows in the Wetland Mosaic. Perhaps the largest patch of upland meadow area (7 acres) is located just northwest of Building 193, south of Sand Point sportsfields along Sportsfield Drive. North and south of the interior parking lot is another area of Upland Meadow. All of these meadow areas are to be managed as meadow habitat to prevent colonization by both non-native and native woody species. This management will consist of a fall mowing regimen, and might also include regular hand weeding as necessary. Mowing is to be done late enough in the growing season (September) to accommodate bird nesting season as well as seed head production for wildlife forage. These areas are important habitat for passerine birds and as prey production areas for short-eared and barn owls, present on the NOAA site to the north. Habitat complexity can be improved by placing wood debris/brush piles within the interior of the meadow zones, or near areas of shrub/woodland edges. Wildlife will use brush piles as refuge, perches, and escape habitat.

Management and Maintenance Annual Calendar
Habitat Zone – Upland Meadow Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
Maintaining Meadow									•			
Weeding and Invasive Control												
Trees							▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

MAINTAINING MEADOW

Upland meadows are to be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. This will consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

WEEDING AND INVASIVE CONTROL

Non-native poplars are the main invasive tree species encountered in meadows. The most common invasive shrubs are Himalayan blackberry, Scot's broom, and non-native hawthorn. Problematic herbaceous species that may occur include Canada thistle. All woody species (native or non-native) are undesirable in upland meadows, and weedy herbaceous species should also be controlled in order to keep the meadows maintained in an early successional stage.

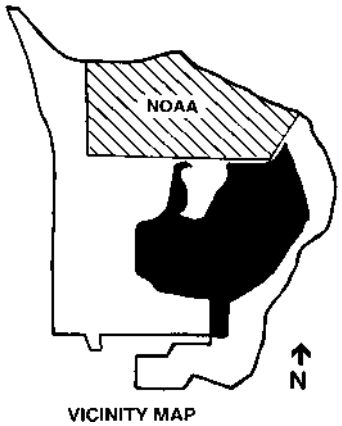
5.8.4 Tree/Shrub Savannah Management Area

Tree/Shrub Savannah areas in the Habitat Zone are present in the eastern/central portion of the Habitat Zone, primarily south of Kite Hill (east of the interior parking lot and northwest of the swim beach access road) and at the far south end adjacent to the Building 193 Zone. These areas should be managed as upland meadows interspersed with small clusters of native trees or shrubs. To achieve this, management actions must include a fall mowing regimen to maintain the meadow habitat, removal of non-native trees and shrubs with replacement with appropriate native tree and shrub species to approximate the existing pattern of meadow interspersed with clumps of woody vegetation. The pattern of long-grass meadow interspersed with clumps of woody vegetation is the result of the site re-colonizing after removal of the airfields. In order to maintain such a complex ecotone, active management will be required.

Management and Maintenance Annual Calendar
Habitat Zone – Tree/Shrub Savannah Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	•	•	•	▢	▢	▢
Maintaining Meadow									•			
Planting												
Trees		▢	▢	▢						▢	▢	▢
Shrubs		▢	▢	▢						▢	▢	▢
Removing Plants	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs					▢	▢	▢	▢	▢			
Herbs				▢	▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that are installed in meadow areas.

MAINTAINING MEADOW

Upland meadows are to be actively managed to prevent further colonization by native woody plants and invasion by non-native species. Maintenance actions will consist of a September mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by invasive woody species. Some regular hand-weeding to control invasives may also be needed. Timing of mowing is to avoid breeding birds and allow seed production for fall migrants and resident birds.

PLANTING

Native trees should replace non-native trees that are removed from these savannah areas. Native replacements should be planted in adjacent or nearby forest areas. Native shrubs should replace non-native shrubs that are removed, but should be planted in the same general location as those plants that are removed. Planting should be clustered near existing forested/wooded areas to create multi-layered habitat complexes.

REMOVING PLANTS

Removals of non-invasive plants are appropriate to perform only in the case of hazard trees or of diseased plant material that needs to be replaced. When possible, removals should be done between August and February to avoid potential disruption of wildlife breeding. Woody debris from plant removals should be left or placed to create complexity for wildlife habitat. Branches, logs, and trunks from woody plants that do not sucker or sprout from cuttings can be gathered into brush piles, placed on the ground as Large Woody Debris (LWD), left upright as snags, or left intact as stumps. Large Woody Debris from suckering/sprouting species like Lombardy and white poplar can be used if the logs are propped off the ground surface until wood is no longer viable (2 years). Poplar logs can be elevated on scrap lumber or other easily-decomposable, non-sprouting wood.

WEEDING AND INVASIVE CONTROL

Non-native poplars are the main invasive tree species encountered in these savannah areas. The most common invasive shrubs are Himalayan blackberry, Scot's broom, and non-native hawthorn. Problematic herbaceous species that might occur include Canada thistle.

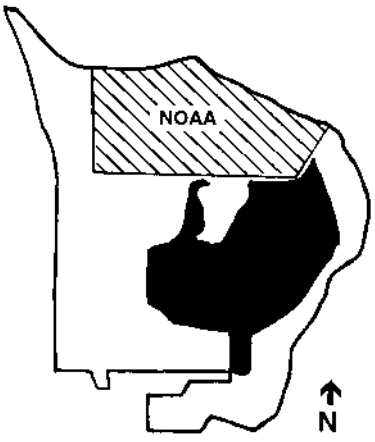
5.8.5 Wetland Management Area

The wetland areas within the Habitat Zone form a mosaic with upland communities across a broad landscape. The designation of the area as wetland was made on the basis of vegetation – regulatory determination of wetland presence was not conducted and no wetland delineation was done. Approximately 11 acres of the Wetland MA are within the Habitat Zone. The three main areas of wetland in this Zone are associated with a shrubby swale that curves through the center of the Habitat Zone flowing in a southeasterly direction, and in two large areas in the western side of the Zone

Management and Maintenance Annual Calendar
Habitat Zone – Wetland Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	•	•	▢	▢	▢	▢	▢	▢
Planting																			
Trees			▢	▢	▢	▢											▢	▢	▢
Shrubs			▢	▢	▢	▢											▢	▢	▢
Herbs					▢	▢	▢	▢	▢	▢	▢				▢	▢	▢	▢	
Pruning	•	•	•	•	▢	▢	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	•	•	•	•	•	•	•
Removing Plants	•	•	•	•	▢	▢	▢	▢	▢	▢	▢	▢	▢	•	•	•	•	•	•	•	•	•	•	•
Weeding and Invasive Control																			
Trees											▢	▢	▢	▢	▢				
Shrubs								▢	▢	▢	▢	▢	▢	▢	▢				
Herbs							▢	▢	▢	▢	▢	▢	▢	▢					

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

The management approach for the wetlands within the Habitat Zone reflects the basic concept for the entire zone: remove and control invasives; add replacement plantings where appropriate; manage natural succession to maintain existing habitat types; or, encourage and accelerate successional change in others. Invasives to target for removal and control in this MA include Lombardy poplar, and species that are not currently prevalent or widespread, such as purple loosestrife and yellow iris. In addition to controlling invasives, the other key element that would improve habitat value within and surrounding the wetland communities on site, would be to create swaths of upland woody vegetation linking isolated wetlands, and further linking these systems to the lakeshore and/or the forests of Promontory Point and the Forest Remnant Zone. Habitat functions also could be improved by placing brush piles and woody debris near existing wetland margins, to provide perches and refuge niches.

Detailed design and implementation work within the wetland habitats of the site should not be undertaken without input from professional wetland ecologists. A thorough understanding of the limits and opportunities present will assure greater success when this work is undertaken. In addition, there may be substantial regulatory permitting concerns and issues on site. The practices outlined below assume professional assistance, therefore they are not as specific as for other MAs.

3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed plantings in buffers and possibly within wetlands as well.

PLANTING

Planting should only be done with a commitment for 3 year establishment care. Species selection should reflect microclimate and hydrologic conditions at each planting site, but should be Puget lowland native species typical of wetlands subject to severe ranges in moisture periodicity from inundation to prolonged drought. Section 6.11 Tables give some reference lists of appropriate species.

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall as woody debris. Misshapen or hazardous limbs may not be critical issues in wetland areas where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

REMOVING PLANTS

Other than invasives, removals should be performed only in the case of hazard trees, or of diseased, installed plant material that needs to be replaced. When possible, removals should be done between August and February to avoid potential disruption of breeding wildlife. Woody debris from plant removals should be left or placed to create complexity for wildlife habitat. Branches, logs, and trunks from woody plants that do not sucker or sprout from cuttings can be gathered into brush piles, placed on

the ground as Large Woody Debris (LWD), left upright as snags, or left intact as stumps. Large Woody Debris from suckering/sprouting species like Lombardy and white poplar can be used if the logs are propped off the ground surface until wood is no longer viable (2 years). Poplar logs can be elevated on scrap lumber or other easily-decomposable, non-sprouting wood.

WEEDING AND INVASIVE CONTROL

Weedy and invasive species most likely to be problematic in this MA include: Himalayan blackberry, non-native poplar, yellow iris, purple loosestrife, and reed canarygrass. Woody debris resulting from invasive control that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps (see description, above). Weeding and removal of non-native or invasive shrub and herbaceous species should take place during the growing season with as-needed frequency but at least monthly in the first year after installation.

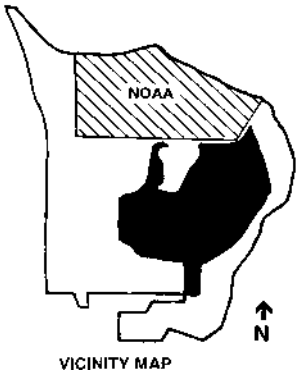
5.8.6 Wetland Mosaic Management Area

This MA represents the largest area within the Habitat Zone at 23 acres. The area has been designated a 'mosaic' because it has both wetland and upland habitats intermixed in such complexity as to make it unreasonable to map the distinctions for this VMP. The MA is located in the western and central areas of the Habitat Zone, north of Building 193, east of the Sand Point fields, and west and south west of the interior parking lot. It is characterized by herbaceous vegetation (mostly grasses and grass-like wetland plants), as well as scattered native and non-native trees and shrubs. Non-native poplars are a significant invasive presence within this MA and contribute to the overall existing canopy coverage. They are highly invasive, but do provide some wildlife habitat functions (perch habitat for songbirds, raptors, and owls; food source for insectivorous birds), so should be removed and replaced with native species incrementally.

Management and Maintenance Annual Calendar
Habitat Zone – Wetland Mosaic Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	•	•	•	▢	▢	▢
Planting												
Trees		▢	▢	▢						▢	▢	▢
Shrubs		▢	▢	▢						▢	▢	▢
Herbs			▢	▢	▢	▢			▢	▢	▢	
Pruning	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Removing Plants	•	•	▢	▢	▢	▢	▢	•	•	•	•	•
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs						▢	▢	▢	▢			
Herbs				▢	▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

For management purposes, the area will be treated similarly to the Wetland MA, with a focus on the control and removal of invasives; add replacement plantings where appropriate; manage natural succession to maintain existing habitat types; or encourage and accelerate successional change in others. Invasives to target for removal and control MA include Lombardy poplar and hawthorn. In addition to controlling invasives, the other key element that would improve habitat value is placing brush piles and woody debris throughout the MA for perches and refuge niches.

3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed plantings throughout the MA.

PLANTING

Planting should only be done with a commitment for 3 year establishment care. Species selection should reflect microclimate and hydrologic conditions at each planting site, but should be Puget lowland native species adapted to severe ranges in moisture periodicity from inundation to prolonged drought. Section 6.11 Tables give some reference lists of appropriate species.

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall as woody debris. Misshapen or hazardous limbs may not be critical issues in habitat areas where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

REMOVING PLANTS

Other than invasives, removals should be performed only in the case of hazard trees, or of diseased, installed plant material that needs to be replaced. When possible, removals should be done between August and February to avoid potential disruption of breeding wildlife. Woody debris from plant removals should be left or placed to create complexity for wildlife habitat. Branches, logs, and trunks from woody plants that do not sucker or sprout from cuttings can be gathered into brush piles, placed on the ground as Large Woody Debris (LWD), left upright as snags, or left intact as stumps. Large Woody Debris from suckering/sprouting species like Lombardy and white poplar can be used if the logs are propped off the ground surface until wood is no longer viable (2 years). Poplar logs can be elevated on scrap lumber or other easily-decomposable, non-sprouting wood.

WEEDING AND INVASIVE CONTROL

Weedy and invasive species most likely to be problematic in this MA include: Himalayan blackberry, non-native poplar, yellow iris, purple loosestrife, and reed canarygrass. Woody debris resulting from invasive control that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat such as brush piles, LWD, snags, or stumps (see description, above). Weeding and removal of non-

native or invasive shrub and herbaceous species should take place during the growing season with as-needed frequency but at least monthly in the first year after installation.

5.8.7 Mowed Grassland Management Area

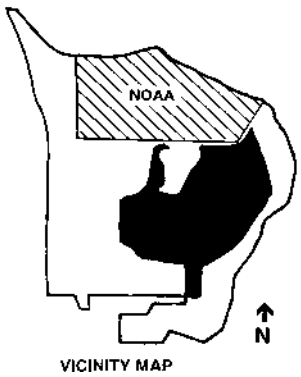
This MA is present immediately surrounding the existing tennis courts and on the top and eastern flanks of Kite Hill. It represents 6.4 acres of the Habitat Zone. This MA represents areas that are used for recreational purposes within the Habitat Zone: tennis, sitting, kite flying and other 'grassy field' sports or activities. Although these uses may not be considered 'habitat', this MA is included within this Landscape Zone for ease of mapping considerations. It is assumed that management will continue as regular repeated mowing based on turf management standards, not meadow standards.

The MA abuts areas of meadow, non-native thickets, and upland forests, so management activities may 'borrow' from each of those on the margins of the mowed grassland in order to keep the grassland intact. Near the tennis courts is a row of Lombardy poplar that are spreading by suckers and wind-blown seed. A long-term goal would be to remove these trees incrementally and replace them with more appropriate native trees and shrubs in order to maintain while replacing the shade and wind-blocking function that they currently provide.

Management and Maintenance Annual Calendar
Habitat Zone – Mowed Grassland Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▢	▢	▢	▢	▢	▢	▢	•	•	▢	▢	▢
Pruning	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Removing Plants	•	•	•	•	▢	▢	▢	•	•	•	•	•
Taking Care of Turf	•	•	•	•	•	•	•	•	•	•	•	•
Weeding and Invasive Control												
Trees							▢	▢	▢			
Shrubs					▢	▢	▢	▢	▢			
Herbs				▢	▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native trees and shrubs.

PRUNING

Prune trees and shrubs along the margins as needed for plant health and public safety.

REMOVING PLANTS

Removals of any natives should be performed only in the case of hazard trees, or of diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from removal of invasive trees or shrubs that do not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat features (such as brush piles, LWD, snags, or stumps) on the margins of the mowed grasslands. Wood that can not be used for habitat features until completely dead, should be stored off the ground until such time (2 years) that it is no longer viable.

TAKING CARE OF TURF

Turf care activities occur throughout the year.

WEEDING AND INVASIVE CONTROL

Regular and frequent mowing in this MA greatly reduces the occurrence of invasives, and limits them to the outer edges. Care to control the expansion of stands of Himalayan blackberry and Scot's broom should be taken, especially on Kite Hill. Non-native poplar is present and incremental removal and replacement of these tree species is recommended.

5.9 Dog Off-Leash Zone

This Zone is currently undergoing redesign while this Vegetation Management Plan is being crafted. Future conditions may include management of wetland areas to preclude seasonal access by dogs and humans during winter months, the creation of several acres of wetland and upland buffer compensation for proposed trail expansions from existing conditions. In addition, there is a conceptual plan for removal of the non-native thicket near the beach and replacing it with a variety of native shrubs and trees. Future conditions within the OLA are not described in this vegetation management plan as the conditions are subject to at least two permit applications, review and conditioning by Federal regulatory agencies. The Off-Leash Zone is therefore described in existing conditions. Future monitoring and maintenance activities, as outlined in the Off-Leash Area Wetland Compensatory Plan, now under review by the Corps of Engineers, or other future permit applications should be incorporated into this VMP once the permits have been accepted and conditioned by the Corps.

It is proposed to realign the Off-leash boundary to the north and west, to incorporate more upland meadow currently located northeast of the Junior League Playground. The seasonally wet swale that runs through this area will be fenced off from fall through spring, to preclude human or canine access into the standing water. Further east in the Off-leash area, the narrow E/W trail may be slightly widened to the south in some locations. Such widening has been proposed in areas avoiding existing wetland as much as feasible. To compensate for woodchip fill which has been placed in wetland - and for proposed additional impacts - wetland habitats outside the off-leash area will be created and enhanced at the north base of Kite Hill. In addition, an expansive area of dense blackberry thicket will be removed and replaced with native upland trees and shrubs to form a structurally more diverse upland shrub/forest buffer.

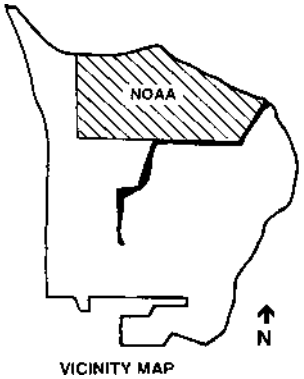
5.9.1 Upland Forest Management Area

The Upland Forest MA is a small patch of the Zone. It includes the small stand of mixed deciduous saplings located just south of the Junior League Playground, on the west side of the Dog Off Leash Zone. The madrone saplings are a key component of this woodland, however, protecting them from fungal blight may not be possible. The density and vigor of the young saplings is sufficient to warrant an attempt to preserve them. Deciduous species, located further to the east in the stand, are a mixture of non-native birches and native alder, big leaf maple and willow. This stand could benefit from additional species installation, of both canopy and shrub species. Given its location, care for tree height choices may be in order. The soils in the patch are severely compromised due to historic activities. If additional woody species are installed, some 'over-excavation' by breaking apart the compacted soils mechanically in an exaggerated circle around the installed plants may be extremely beneficial to long-term establishment and survival.

Management and Maintenance Annual Calendar
Dog Off-leash Zone – Upland Forest Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	▒	▒	▒
Planting												
Trees		▒	▒	▒						▒	▒	
Shrubs		▒	▒	▒						▒	▒	
Pruning	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Removing Plants	•	•	▒	▒	▒	▒	▒	•	•	•	•	•
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs					▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



3 YR. ESTABLISHMENT CARE

This care will be needed for any newly installed woody plantings.

PLANTING

Planting should only be done with a commitment for 3 year establishment care. Species selection should reflect the setting and should be Puget lowland native species typical of an upland forest, suggestions are in Section 6.11. It may be beneficial to break apart the extraordinarily compacted soils mechanically prior to installing larger woody material (this is not advised within the rooting zones of the madrone sapling grove, to avoid accidental damage or ingress for fungal diseases).

PRUNING

Pruning should be limited to removal of limbs that pose a hazard to human infrastructure or public safety, otherwise dead limbs should be allowed (or encouraged) to fall to the forest floor as woody debris. Misshapen or hazardous limbs may not be critical issues in the interior of woodlands or forests where no maintained trails traverse. Best professional judgment should prevail for limb or tree removal, keeping in mind habitat enhancement priorities as well as public health and safety.

REMOVING PLANTS

Other than invasives, removals should be performed only in the case of hazard trees, or of diseased plant material that needs to be replaced. When possible, removals should be done between August and March to avoid potential disruption of nests. Woody debris resulting from plant removals that does not sucker or sprout from cuttings or branches can be left or placed as wildlife habitat in the Habitat Zone, but not in the dog run. Habitat features can be brush piles, LWD, snags, or stumps. Wood that cannot be used for habitat features until completely dead, should be stored off the ground for the interim period (2 years).

WEEDING AND INVASIVE CONTROL

Weedy and invasive species most likely to be problematic in this MA include: Himalayan blackberry, hawthorne, non-native poplar, and Scot's broom. Weeding and removal of shrub and herbaceous species should take place during the growing season with as-needed frequency but at least monthly.

5.9.2 Non-native Shrub Management Area

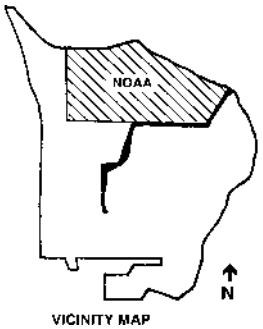
One substantial non-native shrub thicket (0.4 acres) exists in the Dog Off Leash Zone at the far east, end near the shoreline. In current conditions this is a high use area, which prevents any rapid undesirable expansion of the blackberry thicket. Because of the intensive human and dog use of this area, it is not considered high in habitat value. There is currently a very draft plan under development to remove the invasive thicket and replace it with a variety of native shrubs and trees. That plan is subject to review and conditioning by the Corps of Engineers, therefore, it is recommended that the maintenance and monitoring plan associated with that plan be incorporated as part of this VMP when the permits are approved.

If the site remains as an extensive non-native shrub thicket, then it should be managed under the same provisions as other Non-Native Shrub MA's in the Park. Those standards are provided below.

Management and Maintenance Annual Calendar
Dog Off-Leash Zone – Non-native Shrub Management Area

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
3 Yr. Establishment Care	▒	▒	▒	▒	▒	▒	•	•	•	•	•	•
Establishing Meadow				▒	▒	▒	▒	▒	▒	▒		
Maintaining Meadow									•			
Planting												
Trees		▒	▒							▒	▒	▒
Shrubs		▒	▒							▒	▒	▒
Herbs			▒	▒	▒	▒				▒	▒	
Amending Soils							▒	▒	▒			
Weeding and Invasive Control												
Trees						▒	▒	▒	▒			
Shrubs				▒	▒	▒	▒	▒	▒			
Herbs				▒	▒	▒	▒	▒				

▒ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

3 YR. ESTABLISHMENT CARE

This care will be needed for any new woody plantings that replace non-native shrubs.

ESTABLISHING MEADOW

Some limited meadow areas can be established in cleared thicket areas that are adjacent to existing upland meadows. This will be the most labor-intensive and difficult plant community to establish in these areas due to the level of invasive control that will be needed. For these reasons, and because of the prevalence of meadow habitat in the Park currently, establishing more meadow may not be the most desirable choice for both ecological and economic reasons. Establishment would include removal of the invasives, seeding, weeding, mowing, and possibly soil amending.

MAINTAINING MEADOW

Any newly established meadows created as conversion from non-native shrub thicket must be actively managed to prevent colonization by woody plants and invasion by weedy herbaceous species. Annual fall mowing will be necessary to adequately control re-sprouting shrubs until meadow is established. After invasive shrub recruitment is controlled, mowing frequency can be decreased to one mowing every other year or every third year depending on the presence and rate of re-growth/reinvasion by woody species. Some regular hand-weeding to control invasives may also be needed.

PLANTING

Planting in non-native shrub areas should proceed after clearing, and any soil amending or sheet mulching has been completed. Thickets of non-natives that are adjacent to existing forest should be converted to a native woody plant community (trees and/or shrubs) rather then meadow, in order to expand the native shrub/forest communities on site. Thickets adjacent to existing upland meadow should be converted to meadow, oak savannah, or native shrubs. See the Tables in Section 6.11 for information on plant moisture tolerances.

AMENDING SOILS

Soil amending throughout planting area may be necessary or desirable after non-natives have been cleared and prior to planting.

WEEDING AND INVASIVE CONTROL

Non-native shrub thickets consist largely of Himalayan blackberry. Control and removal strategies for this species are described in Section 6.11.

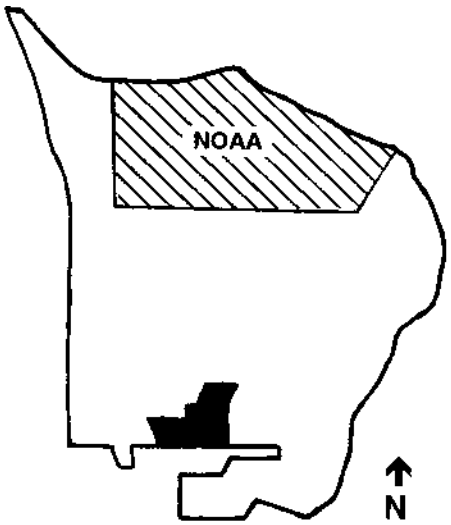
5.10 Building 193 Zone

This Zone is located immediately west of Building 193, and incorporates the parking lot landscaping for the building. The plants are typical non-native landscaping species of trees and shrubs. Maintenance priorities have to focus on maintaining public health and safety within the actively used parking lot for humans and vehicles.

Management and Maintenance Annual Calendar
Building 193 Zone

	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Management and Maintenance Practices												
Pruning	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Removing Plants	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢
Weeding and Invasive Control												
Trees						▢	▢	▢	▢			
Shrubs					▢	▢	▢	▢	▢			
Herbs					▢	▢	▢	▢				

▢ Indicates range of time to perform action as needed
• Indicates specific time to perform action



VICINITY MAP

PRUNING

Existing trees should be evaluated for pruning needs, to improve condition and reduce hazard potential wherever possible.

REMOVING PLANTS

Trees with significant structural problems should be removed.

WEEDING AND INVASIVE CONTROL

Removal of invasive non-natives such as Himalayan blackberry should be done on a regular basis to assure that no thickets become established. Weedy herbs should be removed on a regular basis to preclude setting seed to be dispersed into the nearby Habitat Zone.